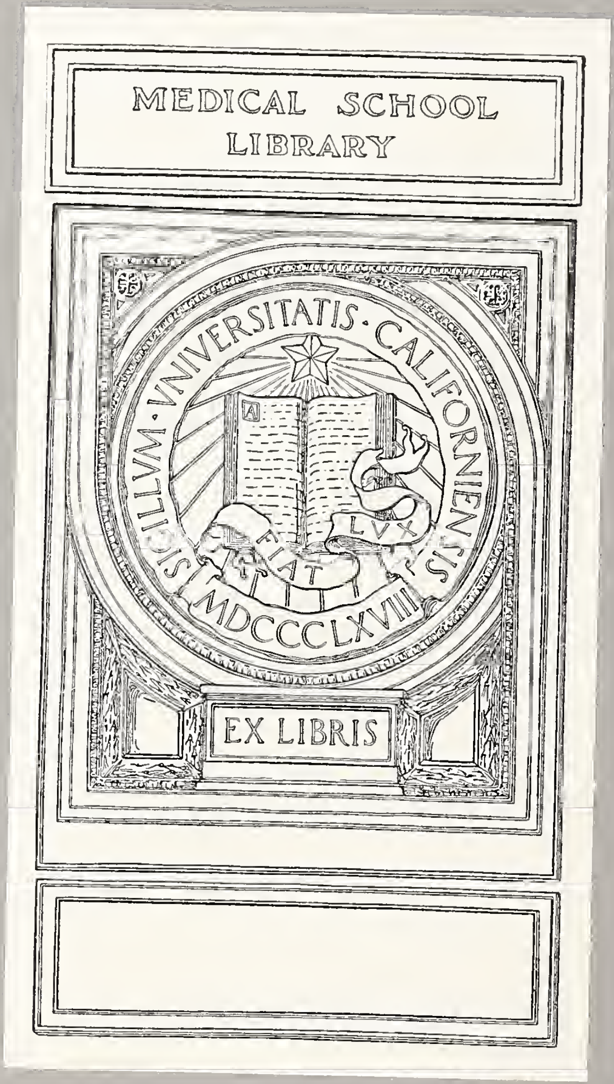
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# THE DOCTOR AS AN EXPERT WITNESS*

ST. CLAIR ADAMS
New Orleans

There were two statements in the address of Doctor Courtland P. Gray, your President, with which I heartily concur. First, that the medical profession is overworked and underpaid. This condition excites my deepest sympathy, because there is at least one unit in the legal profession who is also overworked and underpaid. For this situation perhaps there is no remedy. Second, that medicine and surgery are progressive sciences. This fact has been put beyond controversy by the wonderful discoveries you have made to eliminate the dread specter of disease and to cure the injuries resulting from accidents. Unhappily, law is not a progressive science. Its progressive mutations are painfully slow and as halting as the movements of the turtle. Its principles rest upon prescription and *stare decisis* is its pillar of cloud by day and fire by night. Our guides are still Coke and Blackstone, enlighted, however, in some small measure by the more liberal principles of Mansfield and Marshall.

I did not come here tonight to talk about law and lawyers, but to take as my text the relation of physicians and surgeons to the public. The contact of the physician with his patient is not, strictly speaking, a public but rather a private relationship. Except when serving as coroners or on boards of health, or with matters pertaining to sanitation, the public relations of the physician and surgeon are those of the average citizen, perhaps not quite as broad as those of the average citizen, because he does not serve on juries. When, then, do physicians and surgeons perform a public duty of the greatest importance? Undoubtedly when acting in the capacity of expert witness. In that capacity he performs a transcendingly important function, both in civil and in criminal cases, materially assisting in the proper administration of public justice. As an expert witness the physician and surgeon sits on the right hand of the judge. He is the sole reliance of the jury and all medical questions are solved as a result of his experience, learning and wisdom.

Since courts were first established and witnesses appeared before judge and jury, the physician has been called as an expert and therefore has always been a necessary part of the machinery of justice. In the past twenty-five or thirty years the physician's contact with the courts and with public justice has been multiplied a hundredfold. This is due to the invention of the automobile and the airship; the enactment of workmen's compensation laws, and to many other causes arising out of the wonders of this machine age. It is amazing but it is nonetheless true, that today physicians and surgeons testify in perhaps one-half of all the lawsuits actually tried in the courts. In Louisiana I know this to be true and I believe it to be equally a fact all over America. Because the physician and surgeon occupies so large a place in the administration of justice, both civil and criminal, appearing as a witness in so many cases in which his testimony is of primary importance, the public has a manifest and paramount interest in the physician in his character as an expert witness.

It must be understood that courts are not

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established for the purpose of staging a combat of wit between lawyers, but for the sole purpose of ascertaining the true facts of a controverted matter, in a business-like way, in order that the judge or the jury may reach a just conclusion and justice be achieved. This is indubitably the central idea involved in the trial of a lawsuit. True ascertainment of the facts and just application of the law to them, is the ideal result the law seeks to obtain. Physicians and surgeons in this vast number of lawsuits are called as witnesses to testily to medical facts because neither the judge, the jury, nor the lawyers know anything about medicine and surgery. When physicians are called as experts in a case, that case is usually decided on their testimony or, at any rate, the amount of the verdict or judgment is founded upon their scientific evidence. This is the reason why their testimony is so important and also why they should be so meticulously careful in its giving. The testimony of the physician and surgeon is either as to facts which he has ascertained by the application of his science, or to his opinion from facts hypothetically put to him. If he testifies to facts obtained by him at the bedside or at the hospital, as to the nature of the disease or the injury, as to his diagnosis of the case and his treatment, he is then in the position of any other witness and his testimony must be judged according to the credibility of the individual. When he testifies to an opinion, resting entirely upon his appreciation of the facts hypothetically stated to him, and upon inferences and conclusions drawn from such assumed facts, the value of his testimony rests not so much upon his credibility, as upon the correctness and integrity of his opinion. The criticism that is sometimes leveled at the medical profession is based in large measure on opinion testimony and seldom on testimony as to facts. It often happens that two sets of medical witnesses, of equal standing and credibility, will testify to opposite opinions, predicated upon identically the same assumed state of facts. While this frequently occurs among psychiatrists in criminal cases where the mental condition of the accused is involved, it also even more frequently occurs in that more abundant class of cases in the civil courts involving questions of tort, testamentary capacity, and other issues.

The burden of criticism against medical testimony arises largely from two causes: physicians qualifying as witnesses to testify upon questions that are beyond their experience and the scope of their own specialty; and exhibiting a zeal and partisan spirit on behalf of the side calling them as witnesses. This is illustrated by the report made to your Association in 1935 by a committee on expert tesimony of which Dr. Roy B. Harrison was Chairman. Among other things, in that report, it was aptly said:

> "There is no question but that the public as a whole, the judiciary and the bar have come to feel that partisanship too frequently colors opinions as expressed on the witness stand by the medical expert, and the general feeling is that many expert opinions, if not actually dishonest or incompetent, are strongly colored by the interest of the witness."

The observations by Dr. Harrison can be illustrated by two cases, out of many, where medical experts exhibited inordinate partisanship and gave testimony in respect to subjects upon which they were no better qualified than the average layman. One of these cases occurred in my practice. The issue involved was whether the decedent, in a workmen's compensation case, died of tetanus, contracted during the course of his employment, or from some other cause. The decedent had been buried some eight months, when, upon the advice of a pathologist, his body was disinterred and subjected to an autopsy. The autopsy necessarily was incomplete because decomposition had destroyed the brain, the spinal fluid, and all of the extremities, nothing remaining but the torso. If the decedent had been infected with tetanus germs the port of entry was the thumb of the right hand, which had been burned with pitch in the laying of some cork insulation. Of course, no tetanus germs were discovered on autopsy, and therefore pathology could not determine the cause of death. If the decedent died from lockjaw the facts had to be established, not by pathology, but by the signs and symptoms exhibited by the patient before death. Notwithstanding the fact that this was a case where a pathologist could be of no assistance to judge or jury, the pathologist was called as a witness for the plaintiff and testified, not that he found tetanus germs on autopsy, but that, in his opinion, from signs and symptoms, the decedent died of tetanus. A passage from the cross-examination of this witness should serve as a guide to the traveler not to follow the same road.

In further illustration, I have selected a paragraph from the work on "The Art of Cross-Examination" by Mr. Francis L. Wellman. Many lawyers have used the method of cross-examination he employed with success. The writer has frequently used it himself.

> "I remember witnessing some years ago the utter collapse of one of those expert pretenders of the medical type. It was in a damage suit against the City of New York, which I defended. The plaintiff's doctor was a loquacious gentleman of considerable personal presence. He testified to a serious head injury, and proceeded to 'lecture' the jury on the subject in a sensational and oracular manner which evidently made a great impression upon the jury. Even the judge seemed to give more than the usual attention. The doctor talked glibly about 'vasomotor nerves' and 'reflexes' and expressed himself almost entirely in medical terms which the jury did not understand. He polished off his testimony with the prediction that the plaintiff could never recover, and if he lived at all it would necessarily be within the precincts of an insane asylum. I saw at a glance that this was no ordinary type of witness. Any cross-examination on the medical side of the case would be sure to fail; for the witness, though evidently dishonest, was yet ingenious enough to cover his tracks by the cuttle-fish expedient of befogging his answers in a cloud of medical terms. Dr. Allan McLane Hamilton, who was present as medical advisor in behalf of the city, suggested the following expedient:
>
> Counsel: 'Doctor, I infer from the number of books that you have brought here to substantiate your position, and from your manner of testifying, that you are very familiar with the literature of your profession, and especially that part relating to head injury."
>
> Doctor: 'I pride myself that I am—I have not only a large private library, but have spent many months in the libraries of Vienna, Berlin, Paris and London.'
>
> Counsel: 'Then perhaps you are acquainted with Andrews' celebrated work "On the Recent and Remote Effects of Head Injury"?
>
> Doctor: (Smiling superciliously). 'Well, I should say I was. I had occasion to consult it only last week.'
>
> Counsel: 'Have you ever come across "Charvais on Cerebral Trauma"'
>
> Doctor: 'Yes, I have read Dr. Charvais's book from cover to cover many times.'
>
> Counsel continued in much the same strain, putting to the witness similar questions relating to many other fictitious medical works, all of which the doctor had either 'studied carefully' or 'had in his library about to read', until finally, suspecting that the doctor was becoming conscious of the trap into which he was being led, counsel suddenly changed his tactics and demanded in a loud sneering tone if the doctor had ever read Page on "Injuries of the Spine and Spinal Cord" (a genuine and most learned treatise on the subject). To this inquiry the doctor laughingly replied, 'I never heard of any such book and I guess you never did either!'
>
> The climax had been reached. Dr. Hamilton was immediately sworn for the defense and explained to the jury his participation in preparing the list of bogus medical works with which the learned expert for the plaintiff had shown such familiarity."

The question is, what is the remedy to remove this rising tide of criticism and by whom should the remedy be applied? Perhaps the best answer is to say what should not be done. Therefore, in my opinion, the remedy is not the institution of the official medical witness, or the creation of a class of medical witnesses called solely by the judges. The creation of such class of witnesses would necessarily work a fundamental change in our judicial system and not now in existence anywhere in the Anglo-Saxon speaking world. The practical effect would be to create a small coterie of expert medical witnesses who would enjoy the patronage of the particular judge favoring them and such favors would be parceled out in the same way as is other quasi political patronage of the courts. The parties to a litigation should be left free, as at present, to select and employ their own medical experts. This question was learnedly discussed by Sir James Fitzjames Stephen, a celebrated English judge and law writer:

> "This is the question:—Which is right, the present system according to which skilled witnesses are called by each side at the discretion of the parties and are examined and cross-examined like other witnesses, or a proposed system according to which such witnesses should be appointed by the court and occupy a position more or less resembling that of assessors? The matter has been often discussed, especially by medical men. I have the strongest possible opinion in favor of the maintenance of the present system for the following reasons: Our present system provides a definite place and definite rights and duties for the parties, the judge, the jury, and the witnesses. What room there is for any other persons in the proceedings I do not see. It is impossible to say what an expert is to be if he is not to be a witness like other witnesses. If he is to decide upon medical or other scientific questions connected with the case so as to bind either the judge or the jury, the inevitable result is a divided responsibility which would destroy the whole value of the trial. If the expert is to tell the jury what is the law—say about madness—he supersedes the judge. If he is only to advise the court that the prisoner is mad, he supersedes the jury. If he is only to advise the court, is he or is he not to do so publicly and to be liable to cross-examination? If yes, he is a witness like any other. If no, he will be placed in a position opposed to all principle. The judge and the jury alike are and ought to be, instructed only by witnesses publicly testifying in open court under oath. It never would be, and never ought to be, endured for a moment that a judge should have irresponsible advisers protected against cross-examination."

The remedy almost leaps to the eye. It is the registration and classification by organized medicine of medical experts. This remedy involves the preparation of a directory of medical experts, to whom recourse could be had by litigants, lawyers and judges. This suggestion is not novel and is contained in Dr. Harrison's report to which I have previously referred. The application of this remedy would not be by external means by the judges, but internally by the medical profession itself. No good reason exists why the medical profession should be regulated from without when it can be better done from within. Organized medicine requires no coercion to remedy a condition which it recognizes and which it is determined to correct. In addition to the establishment of a directory of expert medical witnesses, medical associations should adopt canons of ethics applicable to the profession when acting as expert witnesses and should impose penalties for their infraction. The American Bar Association and other bar associations have established such rules of professional conduct and, without loss of face or dignity, the medical associations could well follow such example as to medical expert witnesses. I have formulated out of my own and the experience of others, a body of rules for expert medical witnesses which might be usefully considered, as follows:

1. In all cases in which your opinion is asked, arrange for a definite fee for an investigation of the case and for your opinion on the facts set before you, but with the express understanding that you are not to undertake to be a witness unless you are entirely satisfied as to the merits of the case. Make no agreement for compensation based on a contingency or proportionate to a recovery. Such contracts smack of champerty and tend strongly to induce perjured testimony. They have been frowned on by the courts and held to be against public policy.

2. Before going on the witness-stand make

yourself thoroughly familiar with all the facts upon which you are to testify.

3. After acquainting yourself with all the facts bearing upon the case and carefully considering the opinions you would deduce from them, it is well to refresh your memory by reference to the views held by standard writers in relation to the subject in hand.

4. Have a conference, if possible, with the experts of the other side for the purpose of interchanging views.

5. Refuse to give evidence as an expert if you have the least doubt as to the correctness of your opinion founded upon the facts adduced.

6. On the witness-stand let your bearing be dignified and grave; remember that the settlement of valuable property rights or the conviction or acquittal of a human being may depend upon your testimony, and avoid, therefore, any flippancy of manner.

7. In testifying use plain and simple language, avoiding technical medical and scientific terms wherever possible. Common Anglo-Saxon terminology appeals best to the average judge and juryman.

8. Never qualify as an expert upon any branch of medicine in which you have never specialized. To illustrate: if you are a pathologist, refuse to qualify as a clinician, surgeon or neurologist. It is dishonest to dress yourself in borrowed robes.

9. Remember that your answers to questions are taken down, recorded, and often printed, and that the evidence you give this day may be reinvestigated at a subsequent trial, and your opinion in this case brought before you in some other case, so that you should clearly understand each question put to you, and answer it deliberately, carefully and coherently.

10. Answer directly and simply the question which is asked, volunteering nothing beyond what is required to place the facts or opinion requested clearly before the court. You will sometimes be asked in cross-examination to answer a question by "yes" or "no" only, and in case such monosyllabic replies are not misleading you should answer in this way, but if, as is often the case, they give only a part of the truth, it is your duty and your right to explain your answer, so that it may entirely represent your views.

11. It is sometimes difficult for a witness to avoid the unconscious bias which makes him involuntarily hesitate to answer directly a question when he sees it may do harm to the side that employs him; but you are there "to tell the truth, the whole truth, and nothing but the truth", whether it is good or bad for one party or the other, and your straight unbiased answer to every question of examiner and cross-examiner will do much to dignify your testimony and to impress the jury with the sincerity and value of your statements. Never answer in such a manner as to allow even a remote suspicion that you are a partisan.

12. The cross-examiner may attempt to irritate you by his manner or by the character of his questions. It is almost needless to say that when he does this, he considers it a part of his duty to his client. He will usually resort to any legitimate means to minimize the value of your testimony, and will sometimes use even questionable methods to accomplish this. Be careful, clear, honest, and take no offense. You will then deprive him of one of his weapons.

13. If asked a question, the answer to which you do not feel certain of, do not hesitate to say so. It is the wisest witness that knows when to say "I do not know."

14. You may be asked if the work of such and such a writer is an authority, and upon assenting to this, quotations may be cited in opposition to the facts you may have given. Remember that in science, facts themselves are the only authority and that a book simply represents an attempt to present these facts. Books are, therefore, not in themselves authorities. Being sure of your facts, do not allow your judgment to be shaken, however great the reputation of the writer, for even the authors of books are mistaken sometimes and may misstate the known facts. If you desire quotations from other writers to substantiate your statements, you can arrange with the lawyer engaging you to lay such relevant matter before the jury either through yourself or other expert witnesses.

Some find it easy to criticize and some find the task unpleasant. When I look back over thirty-six years at the Bar, remembering having examined and cross-examined hundreds of physicians and surgeons; when I visualize as an expert medical witness Dr. Rudolph Matas, that great master of medicine and surgery, that learned and upright man known wherever the healing art is practiced, honored by the learned and respected by everyone, who has contributed, perhaps, more to the advancement of the science of surgery than any other living man and who has been a model for all medical experts to follow, I can honestly testify that generally medical expert testimony in Louisiana is competent and honest and in this respect much higher than that of witnesses at large.

The critic always leaves a bad taste in one's mouth and so I shall administer a sugar-coated pill of genuine laudation before I close. In boyhood I thought the military was the noblest of all of the professions. In my mind's eye I saw Alexander building a Greek empire in Asia; I saw Hannibal crossing the Alps to invade Italy; and I dreamed of Julius Caesar at Pharsalia becoming lord of the world, and I read of Napoleon, on the bridge at Lodi and basking in glory in the sun of Austerlitz. I thought that these were great men and war a glorious thing, my immature mind not thinking of the anguish and the pain, the destruction and desolation, the widows' weeds and orphans' tears that follow in the wake of such victories. Only pacifism forgets that the sword of soldiers like Washington and Lee and Grant make it possible for the pens of statesmen like Jefferson and Hamilton and Madison to write such documents of human liberty as the Declaration of Independence and the Constitution of the United States. While still a great admirer of the soldier, with older years and riper reflection has come the opinion that of all the "professions that go the primrose way to the everlasting bonfire", that of the physician and surgeon is the noblest.

It preserves and does not destroy; it does not create pain and suffering, but heals and assuages them; it seeks the cause of disease and devises the means of its abolition; it supervises our entrance into the world, ministers to our ailments throughout life and eases our pain and suffering at our death. No other profession can suggest names more entitled to our veneration than the medical profession. The name of no king or soldier or statesman, scientist, poet or author is fit to be written beside that of a Pasteur or that of hundreds of others of equal nobility.

# PRESENT STATUS OF FEVER THERAPY*

**W. H. SLAUGHTER, M. D.**†
and
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NEW ORLEANS

As is well known, fever reactions can be produced by various methods, among which are the injection of foreign proteids, injection of turpentine in olive oil, and the injection of malarial organisms as is carried out by the Wagner-Jaureggs procedure in the treatment of syphilis. These methods, however, cannot always definitely be controlled, thus leaving the physical methods as the ones of choice in the induction of artificial fever. During the past few years, and particularly during the past three years, a remarkable wave of enthusiastic study has been carried out in fever therapy. This study has included various methods such as hot baths, diathermy, inductothermy, radiothermy, radiant heat and air-conditioned cabinets. Through trial and experience, information is gradually being gathered concerning the most practical apparatus for use; the best methods of giving the treatment in the method selected, and the complications which may arise following treatment, together with the prevention of such complications. In addition, we are learning what diseases should or should not be given fever treatment, as well as the amount of treatment that can be tolerated in those receiving it.

It is not the purpose of this paper to attempt to point out the best method to use, except to say that the method used must be one that gives a maximum of safety and comfort to the patient at the range of fever required. At best, the patient is not infrequently brought to the border line of disaster, therefore, the apparatus must be the best available and, equally important should be operated by well trained and careful workers.

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†From the United States Marine Hospital, New Orleans.

We shall attempt, as far as possible, to discuss the various phases of fever therapy with particular reference to the air-conditioned cabinet, namely, the Kettering hypertherm, which is the apparatus in use at the New Orleans Marine Hospital and in about twenty other hospitals in the United States. This apparatus has been described in the literature, and demonstrated to many of you at the Marine Hospital and no doubt elsewhere. Briefly described, it is a large cabinet made of celotex and heated by a 1500 watt electric heater and humidified by an electric humidifier. The heat and humidity are controlled by a thermostat and humidostat, respectively. The warm humidified air is circulated over the patient by means of two small electric blowers. There is a sliding door on each side of the cabinet through which the patient may be observed, treatments such as intravenous medications given, blankets adjusted, rectal temperature taken and blood pressure determined. During the past few months some changes in the operation of the fever chamber have been made which have resulted in a shorter and better period of induction and the easier maintenance of fever throughout the treatment. The relative humidity in the cabinet has been changed from a 35 to 40 per cent range to a 50 to 55 per cent range. At the same time, the dry bulb temperature is dropped from 150-155 degrees F. level to 140 to 145 degrees F. During the fever maintenance period, the air-flow rate has been reduced about one-half. This has resulted in a marked decrease of skin burns and also permits of less covering of the patient during the induction phase of the treatment.

### REPORTS FROM THE LITERATURE

In making a survey of the literature, it was found that many diseases have been treated with fever therapy.

*Pulmonary Tuberculosis*—Duncan and Mariette[1] reported on 34 cases treated by the Kettering hypertherm, baths and general diathermy, in which moderate improvement occcured in 21 per cent, slight improvement in 52 per cent, no change in 21 per cent, and 6 per cent became worse.

Benjamin[2] treated 11 cases in negroes and reported that 10 died, but probably no sooner than they would have under ordinary circumstances.

*Intrinsic Intractible Asthma*—Metz[3] reported six cases in which complete cessation of symptoms resulted in all except one. The five successfully treated cases remained symptom free for as long as seven months.

Sheldon[4] gave fever treatments to 14 patients with asthma; four were unimproved, four had slight to moderate improvement, and six were markedly improved or had complete but temporary relief.

Three cases of asthma were treated by Hefke[5] without obtaining beneficial results. However, the treatments were reported as probably too short.

*Chorea*—Schnabel and Fetter[6] reported ten cases of Sydenham's chorea treated, of which three were classified as severe, five moderately severe, and two as relatively mild, and in which the duration of the disease varied from three and a half weeks to two years. Associated rheumatic endocarditis present in six cases was found not to be a contraindication for fever treatment. Of the 10 cases of chorea eight were cured.

Schmidt[7] reported that six of seven cases treated by him responded very favorably.

Hefke[5] reported definite improvement in two cases treated.

Desjardin and Popp[8] reported nine cases of chorea all of which showed improvement.

*Subacute Bacterial Endocarditis*—Eight cases were treated by the following workers: Simmons[9] reports one case in which there was reduction in temperature and night sweats and in the control of pain. Schnabel[10] reported two cases in which there seemed to be slight improvement for a time but both died later. Faget[11] reported one case in which three fever treatments were given; the patient showed some improvement for a time but died in a few months from cerebral embolism. Bierman[12] reported one patient who died shortly after a fever treatment from multiple embolisms.

Freund and Watts[13] treated three cases with excessive hyperpyrexia at a temperature of 107 to 108° F. for several hours, followed by a higher rise of temperature of 108 to 109° for one hour. Treatments were given at weekly intervals for four or five treatments. General physical improvement was obtained as well as a lower temperature for months afterwards. The blood culture remained positive, however, for Streptococcus viridans.

*Ocular lesions*—In reporting on results obtained in cases of ocular lesions, Doub[14] reported nine cases of corneal ulcer with good results in eight following one to two fever treatments. He also reported two cases of interstitial keratitis and both of these cases cleared up under such therapy.

Results in 11 patients with interstitial keratitis treated by Culler[15] were not quite so satisfactory; he states only that the duration of the disease and the tendency towards recurrence were lessened following adequate fever therapy combined with chemotherapy.

*Dementia Paralytica*—Simpson[16], in reporting on 20 cases of dementia paralytica, each completing a course of 50 hours of fever therapy plus 30 injections of chemotherapy, states that 14 have been socially rehabilitated, four were accorded 50 per cent clinincal improvement, and two were regarded as having received 25 per cent improvement. No relapses have occurred so far.

*Tabes Dorsalis*—Simpson[16] reported results in 10 patients afflicted with tabes dorsalis. Ataxia was present in nine; lancinating pains and gastric crises were present in all. One patient with ataxia of three months' duration and another with ataxia of two years' duration were restored to normal gait. Six patients obtained some improvement in gait and two showed no change. The root pains were abolished in all save one .

*Chronic Infectious Arthritis*—Stecher[17], Hefke[5], Hench[18], et al reported treatment in 106 cases; 49 had moderate to marked relief; 57 had little or no improvement.

*Acute Infectious Arthritis*—Stecher[17] and Hefke[5] reported results in 36 cases of acute infectious arthritis. There was moderate improvement to complete recovery in all but seven cases in which there was no improvement.

*Gonorrhea*—Boak, Carpenter and Warren[19] reported recovery in 80 per cent of 118 cases of gonorrhea, but it was not clear whether these were acute or chronic cases.

Hench[20] reported 95 cases of acute gonorrhea in which 80 to 90 per cent obtained bacteriologic and clinical cures.

*Acute Gonorrheal Arthritis*—Stecher[17], Hefke[5], Schnabel and Fetter[6], Hench[18] et al reported 59 cases. All received from moderate improvement to complete recovery.

Faget[11] reported six cases of gonorrheal arthritis all recovering following the use of fever therapy.

*Chronic Gonorrheal Arthritis*—Schnabel and Fetter[6], Hench[18], Simpson[21] et al subjected 28 cases of chronic gonorrheal arthritis to fever therapy; 27 were recorded as having had modrate improvement to complete recovery, one was unimproved.

Fever therapy has been tried in other diseases as endarteritis obliterans, renal tuberculosis, multiple sclerosis, scleroderma, Parkinson's disease, osteogenic sarcoma, thromboangiitis obliterans, chronic otitis media, acute and chronic osteomyelitis, toxic infectious psychosis, bronchiectasis, epidemic encephalitis, chronic sinusitis, neuritis, nephritis, pyelitis, and many other conditions. Favorable results have been obtained in some of these conditions; in others the results have been poor. However, not sufficient work has been done in any of these diseases definitely to determine the value of fever therapy therein.

## FEVER THERAPY AT THE U. S. MARINE HOSPITAL, NEW ORLEANS

The Kettering hypertherm was first used in the New Orleans Marine Hospital on June 1, 1934. Since that time 203 patients have received a total of 1,141 treatments, an average of approximately five treatments per patient. We will report, in this paper, 175 completed cases. Twenty-eight cases are not reported since sufficient data have not been collected.

Except in some cases where it was contraindicated the course of treatment carried out in our work consisted of elevation of the temperature of the patients in the heat cabinet from

106° to 107° F. for a period of five hours at two to three day intervals for most conditions. In certain types of cases, especially in syphilis, treatments were given at weekly intervals, at temperatures ranging from 105 to 106° F.

*Acute Gonorrhea*—Seventy-eight cases of acute gonorrhea including urethritis with and without complications were treated. Thirteen failed to complete treatment. Of the 65 completing treatment 45, or 69 per cent, obtained complete recovery .

*Chronic Gonorrhea*—Sixty-eight patients with chronic gonorrhea including urethritis with and without complications were treated. Twelve failed to complete the treatment. Thirty-eight patients, or 67 per cent of the 56 who completed treatment recovered completely. Of those who did not recover completely, in both acute and chronic conditions, there was some evidence of a remaining urethritis, prostatitis or arthritis at the time that treatment was discontinued.

Considering gonorrheal urethritis alone, as well as a few of the complications alone, we have the following results to present:

1. Acute gonorrheal urethritis—65 cases completed treatment; 51, or 78 per cent, recovered.

2. Chronic gonorrheal urethritis—56 cases completed treatment; 44, or 78 per cent, recovered.

3. Acute gonorrheal epididymitis—62 cases were treated; 61 cases recovered, the majority having practically a normal epididymis after the second treatment. In many cases the pain was practically gone after the first treatment.

4. Acute gonorrheal arthritis—20 cases completed treatment; 11 recovered; five were markedly improved and four were moderately improved. One of the latter group attained complete relief of pain with physiotherapy.

5. Chronic gonorrheal arthritis—15 cases completed treatment; 10 recovered; three markedly improved; two showed improvement but later had return of symptoms.

6. One case of gonorrheal osteomyelitis was treated with fairly satisfactory results. This case will be reported later in this paper.

Miscellaneous conditions treated at this hospital:

*Granuloma inguinale*—One case was treated; two courses of treatment, one consisting of 10 treatments and one consisting of eight treatments, were given with no improvement.

*Chronic infectious arthritis*—Three cases were treated; one showed slight improvement; one showed slight improvement with incomplete treatment; one showed moderate improvement, with some pain remaining due to bone changes.

*Chronic hypertrophic arthritis*—Two cases were treated; both improved but failed to get complete relief.

*Acute arthritis, cause undetermined*—One case was treated; recovered.

*Epididymitis, acute, cause undetermined*—Two cases were treated; both recovered.

*Epididymitis acute and prostatitis acute, cause undetermined*—One case was treated; case improved but treatment was incomplete.

*Tuberculosis of lungs, spine, and kidneys*—One case was treated; unimproved.

*Chronic dermatitis*—One case was treated; unimproved.

*Torticollis*—One was treated; recovered.

*Dysentery, chronic, bacillary*—One case was treated; improved, but patient did not remain to complete treatment.

*Encephalitis*—One case was treated; patient has not been checked since treatment.

*Urticaria, persistent*—One case was treated; improved.

*Syphilis of nervous system*—Thirteen cases were treated; all showed improvement but it is too early to determine value of this treatment. Chemotherapy was given before and during period of fever treatments. No arsenicals or heavy metals given on day of treatment.

The following case reports are presented to outline, in more or less detail, the management and results in fever therapy in our hands.

Case 1. H. B., white male, aged 21 years, gave a history of having gonorrhea since May 15, 1935. On June 6 he was working in the hold of a steamship when he slipped and struck his left wrist against a bundle of shingles. He had pain for a few minutes at the time but he had no more discomfort until the following morning when the wrist began to swell and became painful. His symptoms continued to increase gradually and by the time he entered the Marine Hospital on June 21, 1935, he had moderate swelling and pain in the left hand, wrist, and forearm. His fever on admission was 38.8° C., pulse 130. The patient appeared acutely ill. Roentgenogram made on July 18 showed almost complete destruction of the lunate and navicular bones of the left wrist and lower inner portion of left radius. An incision was made on the dorsum of the hand and only bloody fluid obtained. The swelling decreased slightly but pain and discomfort persisted. The operative wound had healed by the time fever therapy was instituted. Urethral smear was found to be positive for the first time on June 29, 1935. Fever therapy was begun on July 1 and definite improvement resulted after each treatment. Treatments were given at four to five day intervals during July and August. By the end of August the swelling was gone but some soreness was noted from time to time. A few more treatments were given with longer intervals so that by November 14, he had received a total of 20 treatments. Roentgenograms which were made throughout the course of this treatment showed a gradual improvement in the bone condition. When the patient was last seen on November 29, 1935, he was able to close his hand fully but there was a definite limitation of motion of supination and some limitation in flexion and extension of the left wrist. There was some backward displacement of the ulna. The motions of the wrist were painless and no tenderness of the joint was found on palpation. Roentgenogram taken on November 19, 1935 showed that there was some bony ankylosis of the carpal bones. The urethritis had cleared up by the end of the ninth fever treatment on August 6 and has not recurred since.

We were of the opinion in this case that the condition represented a soft part gonorrheal infection which later involved the carpal bones and distal end of the radius. While at present this patient still has and always will have some disability in this joint, we feel that he has a fairly useful extremity.

Case 2. G. R. C., white male, gave a history of gonorrhea beginning October 6, 1934. On November 25, 1934, he began to have pain and swelling of both hands and knees. The swelling and pain were severe. Urethral smear was positive for the gonococcus. He was given 13 fever treatments beginning December 6, 1934, and ending February 28, 1935. When he left the hospital after the last treatment he had no urethral discharge and all joints were normal. He has been examined repeatedly since then and was last seen on November 27, 1935, at which time he still had had no recurrence of arthritic symptoms or urethritis. He has been engaged in working on board a steamship since March, 1935.

Case 3. D. C., white male, gave a history of gonorrhea since July 26, 1935. Urethritis gradually decreased on local treatment but was still present on September 6, 1935, when he first noticed soreness in left epididymis. By September 13, 1935, the testicle was the size of a large orange and was extremely painful. One fever treatment was given on September 13, 1935, and on the following morning the testicle had reduced two-thirds in size and was painless. On the second day after the treatment the testicle was normal in size. The urethritis had cleared up. He was observed for a month thereafter and repeated efforts were made to find evidence of infection but all gave negative results.

Case 4. J. B., white male, had an onset of gonorrheal urethritis on October 10, 1934, followed in a few days with marked pain, tenderness and swelling of both ankles, right hand and wrist. Four fever treatments were given beginning on October 30, 1934, and ending on November 16, 1934. Arthritis and urethritis cleared up after the fourth treatment. All joint movements were normal.

Case 5. W. T., was a colored male, who gave a history of having had gonorrhea since November, 1934. He was given 14 fever treatments but at the end of the fourteenth treatment his urethral discharge was still positive for gonococci. This is an example of a case that did not do so well.

## PHYSIOLOGICAL MANIFESTATIONS

It might be well, at this point to consider certain physiological manifestations which take place during and after treatment. Fatherree[2], in a review of the literature, has covered this phase of the subject quite thoroughly and we think that the findings of all workers are pretty much in accord, but there is a considerable amount of experimental work still under way which should augment the information already obtained.

There is invariably an early rise in blood pressure which is of short duration; this is followed by gradual decrease of blood pressure to a point well below the usual reading for the patient.

The pulse rate during the fever runs from 135 to 155 per minute.

With reference to blood chemistry, creatinine, urea, uric acid, phosphorous, calcium and sugar, all usually show no change but may be slightly increased. If saline is not given to the patient during treatment there will be a marked decrease in chlorides. There is usually a slight alkalosis, a decrease in $CO_2$ combining power of the blood and an increase in oxygen content and capacity of venous blood.

The blood picture shows the most interesting change. There is a fluctuation of the white cells throughout treatment. The cell count varies from 10,000 to 50,000. Neutrophilic polymorphonuclear leukocytes constitute the most of the early response. Lymphocytes, early in the treatment, drop to a low count and may be as low as 200 to 500 cells. Only rarely do they show a reappearance tendency during the treatment. This reappearance of lymphocytes is usually for a short time only. There is a reappearance of lymphocytes a few hours after the treatment. Concerning the neutrophilic polymorphonuclear leukocytes, there is some discussion as to whether or not there is a release of cells from a reserve deposit. The Arneth and Schilling count showing a shift to the left indicates rather that there is an increased bone marrow delivery of granulocytes. The leukocytes return to normal a few hours after the teatment is completed; at least most cases have returned to normal by the following morning. One of our cases, recently, who had a severe gastrointestinal upset for three days, continued to run a white count of 35,000 but this count returned to normal after the symptoms subsided. The red cells are unchanged as a result of the fever therapy. The data are conflicting as regards the effect of fever therapy on the blood immune bodies.

The rationale of fever therapy is not well understood. The accompanying leukocytosis may be associated with a phagocytic action. The increased temperature may bring about an acceleration of the natural defense mechanism of the body, and the thermal death time of the organisms involved also enters for consideration, particularly in gonorrhea and syphilis.

### REACTIONS IN FEVER THERAPY

There are several types of reactions which may occur as a result of fever treatment but their occurrence has decreased considerably in the light of added knowledge and experience.

Restlessness is not of uncommon occurrence but can be quite well controlled by using amytal or nembutal before treatment begins, and by giving codeine, morphine or dilaudid during treatment.

Abdominal cramps, nausea and vomiting have been fairly well minimized by the use of 500 c.c. of a 10 per cent glucose solution given intravenously in saline medium as recommended by Desjardin. We had two cases, however, in which vomiting and abdominal pains persisted for three to seven days, respectively, despite the usual medication, but finally subsided without any noticeable damage.

Tetany is of rather rare occurrence but is usually prevented by giving 6 per cent saline solution by mouth during the treatment. We have found that most patients will take from 3,000 to 7,000 c.c. during the course of treatment. Occasionally a patient is not able to take the saline by mouth during the maintenance period; this is overcome by giving more fluid before and during the early part of the treatment and by giving intravenous saline during the maintenance portion of the treatment. Under this procedure tetany occurs infrequently; however, when it does occur it is controlled by giving calcium gluconate intravenously or by giving inhalations of $CO_2$ in oxygen.

Herpes of the lips occurred in about 25 per cent of our cases during the first treatment and usually cleared up shortly after the second treatment. It is claimed by Benjamin[2] that ammoniated mercury ointment, U. S. P., applied to the lips several times during the treatment prevents this condition. We had one case with corneal herpes occurring after the eighth treatment. Treatment was discontinued and the cornea cleared up in about two or three weeks. We know of no method advocated for the prevention of this condition. However, it is of rare occurrence and when it does occur further treatments are contraindicated, at least until the herpes has cleared up.

Headaches are not infrequent after treatment but are never troublesome.

Vasomotor collapse is infrequent and can be further minimized by careful selection of patients and by cutting down the fever when the danger signs appear. Simpson[23] states that in recognizing vasomotor collapse, dependence is placed chiefly upon the rate and character of the pulse; no great concern may be given if the pulse remains below 160 and is of good quality. When the pulse rate exceeds 160 and is of poor quality treatment is discontinued and restorative measures are instituted. Hypertonic glucose solution, usually 100 c.c. of 50 per cent solution is given intravenously when indicated, inhalation of oxygen with 7 per cent concentration of $CO_2$ is instituted immediately, and stimulants as adrenalin and caffeine sodium benzoate are given. During the course of treatment the nurse stands almost constantly at the patient's head and eats her luncheon from a tray in order to keep careful record of the temporal pulse.

Statistics gathered from the Mayo Clinic, Miami Valley Hospital at Dayton, Ohio, and U. S. Marine Hospital, New Orleans, show over 900 patients treated with only one death resulting thus giving slightly over .1 of 1 per cent mortality. There have been no deaths in our series of 203 cases. Some deaths have been reported by other workers but lack of complete details of the types of cases in which these deaths occurred prevent us from reporting these statistics. It should be pointed out, however, that Hartman and Major[24] reported some very interesting autopsy findings in two cases. One case died 20 hours after the fever treatment and the second case died 10 days after the fever treatment. Findings, which were practically the same in both cases, were:

(1) Hemorrhagic encephalitis of the base of the brain with ring hemorrhage around the vessels.

(2) Acute parenchymatous degeneration of the liver and kidneys.

(3) Degeneration of the zona fasciculata of the adrenals.

(4) Pneumonia, hemorrhagic, lower lobes in one case, and bronchopneumonia with edema and congestion of lungs in the second case.

Experiments, by the same writers, conducted on dogs subjected to hyperpyrexia, demonstrated changes which paralleled those found in the human, the most important being engorgement of capillaries, hemorrhage and degeneration. The brain was particularly affected, showing hemorrhagic encephalitis; the lungs showed hemorrhagic pneumonia; the adrenals showed degeneration in the cortex with hemorrhage; the liver presented marked engorgement of the sinuses with extensive mid-zonal necrosis and hemorrhage in a few instances; the kidneys showed engorgement of the glomerular tufts and degeneration of the tubular epithelium, especially in the convoluted portions.

### CONCLUSION

Not sufficient work has been done in many diseases as yet to permit evaluation to be placed upon the results obtained in fever therapy. The First International Conference on fever therapy will be held in New York City, in September, 1936, and it is believed that sufficient work will have been done by then to arrive at definite conclusions in many conditions. Suffice it to say we believe that fever therapy occupies a place in therapeutics in certain diseases. It is our opinion that adequate information has already been obtained to enable us to say that it has definitely found a place in the treatment of gonorrhea and its complications, syphilis of the central nervous system, asthma, chorea and acute infectious arthritis.

Acknowledgment is extended to Senior Surgeon T. B. H. Anderson and Passed Assistant Surgeon R. C. Arnold of the United States Public Health Service, who conducted much of the work in the cases treated at the New Orleans Marine Hospital.

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# PILONIDAL SINUS*

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Pilonidal sinus is a clinical term applied to a common pathologic process occurring in the sacrococcygeal region characterized by the presence of single or multiple sinuses with openings on the skin surface which may or may not be accompanied by an acute inflammatory process and which become manifest clinically from infancy to old age.

In a previous publication[1], I have already shown that these sinuses are congenital and develop from the medullary canal. Therefore, a brief review of their embryologic origin will be given in order that their clinical manifestations can be easily interpreted. After the formation of the ectoderm and entoderm the primitive dorsal streak occurs. Folds occur on either side of the primitive streak and finally coalesce, forming first the medullary groove and finally the medullary canal. This medullary canal later becomes the central nervous system by a process of evolutional growth of the primitive ectodermal cells. The caudal tip of the medullary canal closes later than the cephalic end and, therefore, has the potentiality of being influenced by environmental conditions, resulting in abnormal growth and development. That this is probable is revealed by the high incidence of abnormalities in the osseous system at the level of the lumbo-sacral regions[2]. The caudal end of the medullary canal becomes closed off in the tail anlage from the rest of the canal, forming a single, epithelial-lined sac known as the "vestiges medullaire coccygiens"[3]. The lumen of the medullary canal above the cystic dilatation becomes obliterated to form the future filum terminale. According to Tourneaux, this cystic dilatation in the tail anlage at the third month is attached to the skin and there may be communication from this cystic cavity to the surface of the skin. Due to the unequal growth of the osseous tissue and the soft parts, the neural canal, which is attached to the skin, becomes bent in the form of a loop. The deeply situated part of the loop is attached at or near the sacrococcygeal region, while the superficial limb of the loop which is attached to the skin extends somewhat cephalad up over the sacrum, the former being known as the "segment coccygien direct", the latter as the "segment coccygien reflecti". I, too, have found this same arrangement clinically in cases of pilonidal sinuses. During the fourth month the deeply situated loop atrophies while the superficial gives origin to pavement-lined cystic cavities, which in turn disappear after the sixth month. However, traces of them may be recognized at birth. Mallory[4], in a series of fetuses three to four months old, found a cavity and at times a canal lined by pavement epithelium. This was connected to the skin by openings on the surface of the skin or was separated from the skin and situated close to the periosteum over the sacrococcygeal region at the site of or near the sacral hiatus. The above description is that of the normal development of the medullary canal occurring in the embryo and fetuses. If any part of the whole of these structures remains postnatally we then have a pathologic state recognized clinically as pilonidal sinus.

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As the medullary canal completely closes before any of the skin appendages (hair follicles, hair shafts, sebaceous glands at the second and third months, and sweat glands at the fifth month) make their appearance, it would of necessity follow that any remnant of the medullary canal persisting into postnatal life would in all probability have the ability to form only the most primitive of the skin appendages; i. e., hair follicles and hair shafts. These primitive appendages occur only in those remnants remaining near the skin, disappearing entirely as the spinal cord is approached. This I have found to be true from a study of many serial sections of tissue removed at operation from patients suffering from pilonidal sinus. If these sinuses are so intimately associated with the development of the central nervous system, one should find embryonic nervous tissue associated with the sinus tract in some of the cases that fall in Groups 3 and 4. I have demonstrated this in a patient with a pilonidal sinus which extended through the sacral hiatus into the sacral canal up to and attached to the dura. The nervous tissue was embryonic in character and was determined by differential stains to be glial tissue.

The occurrence of similar sinuses along the midline over the dorsal aspects of the spinal canal has been reported by Walker and Bucy[5]. These authors reported a case in which the sinus was at the level of the fourth dorsal vertebra. The sinus extended from an opening on the skin surface through the vertebra and dura, being attached to the spinal cord proper. The sinus tract was lined by stratified squamous epithelium containing hair follicles and hair shafts, but no sebaceous glands or sweat glands. This patient had a small abscess at the junction of the sinus with the cord.

Oehlecker[6] has shown that the caudal ligament is mesenchymal tissue which has its origin from the tip of the last coccygeal vertebra, and is attached to the skin in the tail bud. As the caudal vertebrae grow with greater rapidity than the overlying skin and soft parts, the caudal ligament is turned towards the cephalic end of the embryo. If the development of the caudal ligament does not proceed normally, the ligament remains short and pulls the skin into the form of a dimple over the coccyx. The presence of a sacrococcygeal dimple is of common occurrence in babies, but gradually disappears. If the caudal ligament persists into postnatal life, as a rule it is very short and holds the skin in close approximation to the coccygeal vertebrae. As the nates grow outward and the individual reaches the adult type the simple sacral dimple is converted into a sinus. This sinus points toward the anus in contradistinction to the true pilonidal sinus which points towards the cephalic end. Where the caudal ligament attaches itself to the skin there is an area devoid of all skin appendages which has been termed by Oehlecker[6] as the "sacral bald spot". I have confirmed Oehlecker's[6] observations in a study of tissues removed from children and adults suffering with sacrococcygeal dimples and sinuses.

Therefore, from my clinical, embryologic, and histologic studies, over a period of twelve years, of tissue removed from patients suffering with pilonidal sinuses and cysts, it can be definitely stated that all true pilonidal sinuses and cysts develop from the caudal end of the medullary canal and that the sacrococcygeal dimple has its origin from an abnormal development of the caudal ligament.

From an embryologic standpoint I have divided the pilonidal cysts and sinuses into four types, as follows: (1) the simplest of all the types: the sacrococcygeal dimple and its counterpart, sacrococcygeal sinus; (2) all of the true pilonidal sinuses and cysts and their ramifications that are confined in the sacrococcygeal region without penetrating the sacral canal; (3) all of the true pilonidal sinuses and cysts, multiple or single, that penetrate the sacral hiatus and extend for varying distances into the sacral canal, but are not continuous with the subdural space though the sinus tract may be attached to the dura[1]; and (4) the rarest of all the true pilonidal sinuses and cysts, those penetrating the sacral canal and continuous with the subarachnoid space. Cerebrospinal fluid in small amounts makes its exit from the external opening of the sinus on to the surface of the integument in the sacrococcygeal region[7, 8].

The pathology of this condition is rather simple. All of the sinuses and cystic dilatations of the sinuses reveal varying degrees of inflammation of the surrounding tissue and unequal desquamation of the epithelial lining of the tract and its cystic dilatations. The inflammatory reaction in the uncomplicated case is that of a chronic type being characterized by the presence of round cell (plasma-lymphoid and endothelial) infiltration. However,when there is abscess formation, the typical histologic characteristics of acute inflammation are added to the pre-existing chronic inflammation. The predominating cell is the polymorphonuclear leukocyte. The desquamation of the epithelial lining varies from simple clefts to complete loss of the entire epithelium. There were no sebaceous and no sweat glands present in the serial sections of pilonidal sinuses and cysts that I have studied.

### SIGNS AND SYMPTOMS

In the uncomplicated pilonidal sinus there are only three signs and no symptoms. The three signs are: first, an opening on the skin surface where the sinus communicates with the integument. There may be single or multiple openings; I have observed as many as five openings on the skin surface over the sacrococcygeal region. Second, protruding from these openings hair is often seen which is immature and of fine texture. There is an exception to the above and that is the sacrococcygeal dimple that has been converted into a sinus in which no hairs are present, due to the absence of skin appendages at this site[6]. Third, occasionally there is a slight discharge from the sinus which soils the patient's clothing. This discharge is often called sebaceous secretion, but the discharge is composed of desquamated and macerated epithelium.

When symptoms are present it is always significant of secondary abscess formation. An abscess occurring in the region of the sinus on either side of the midline is the most common complication. The symptoms are then not of the sinus but of an acute abscess and the pilonidal sinus is only discovered at the time of the examination. In some of the cases there will be a history of repeated abscess formation and in this type of case there will be multiple accessory sinuses. I have seen as many as five accessory sinuses. In one case seen in the army in 1918, the entire buttocks on both sides was the site of multiple abscess and sinus formation with scarring as a result of the abscess formation and surgical incisions, the true condition, pilonidal sinus, never having been recognized. The sinus of the true pilonidal sinus (Types 2, 3, and 4) points inward and upward towards the sacral hiatus and occasionally up over the sacrum, whereas the sinus developing from a sacrococcygeal dimple extends downward and backwards and points towards the anus. The latter type is frequently diagnosed as fistula-in-ano.

The diagnosis is not difficult if one remembers that the presence of one or more sinuses in the sacrococcygeal region denotes the presence of a pilonidal sinus, with or without cystic dilatations. The most common complaint is pain in the sacrococcygeal region which is invariably due to the presence of a complicating abscess. Therefore, in every patient with an abscess in the sacrococcygeal region an effort should be made to reveal the presence or absence of an associated pilonidal sinus. One should, by the use of a probe as well as by the injection of lipiodol into the sinus, determine the type of pilonidal sinus present. I believe that the preoperative determination of the type, extent, and associated cystic dilatations, whether the sinus is a true pilonidal sinus or a "sacral dimple sinus", and if the sinus tract enters the sacral canal, its extent into the canal, will predetermine the incidence of recurrence. As the most accurate method of determining the extent, dilations, and their ramifications is by injection of lipiodol, one should always inject the sinus and obtain anterior-posterior and lateral roentgenograms of the sacrum and coccyx. If there is a discharge of clear watery fluid present, one is then dealing with one of the rare types (Type 4), and the tract should not be injected as the sinus is continuous with the dura and the patient may develop meningitis. Therefore, every patient should have a careful examination of the sacrococcygeal region to determine the presence of a pilonidal sinus. They should all be diagnosed and removed surgically before infection has complicated the lesion.

### TREATMENT

The treatment consists of complete surgical excision of the entire sinus tract and its cystic ramifications. The extent of the tract having been predetermined, one may wish to inject the sinus tract in order that complete removal will be obtained at operation. If one wishes to stain the tract, any one of the common dyes will suffice. Gentian violet and brilliant green produce a good stain and are recommended. The dye solution should never be injected at the time of the operation for obvious reasons. At least daily injections should be made for three days before operation, the last injection being given the day before operation. If this technic is followed, there will result a deep staining of the sinus tract and all of its ramifications, and the dye solution will not be running all over the operative field and the tissues.

If an abscess secondary to the pilonidal sinus is present, a very common complication, one should treat the abscess by incision and drainage, deferring the excision of the sinus tract for a future date, preferably four to six months. This allows the infection to subside and the surrounding tissue to develop an immunity, and the surgical excision can then be done with safety. Multiple sinuses secondary to previous abscess formation are no contraindication to surgical excision. I have excised pilonidal cysts with five accessory sinuses produced by previous abscess formation and obtained primary healing of the wound.

The technic of the operation is very simple. The extensive dissections with plastic flap operations to close the defects are entirely unnecessary and, in fact, are frequently harmful. When there are secondary sinuses, the primary pilonidal sinus should be removed by an elliptical incision and the accessory sinuses by lateral incisions. This minimizes tissue removal and promotes wound approximation without tension and rapid wound healing. Where there has been no previous infection of the sinus tract one may make an incision directly into the sinus tract through its entirety, then proceed to dissect the tract from the surrounding tissue. This procedure creates a very small wound, and one that is closed with ease, and the convalescent time is greatly shortened. When it is necessary to extend the dissection to the sacrococcygeal periosteum and when there has been a previous infection, the wound is closed with drainage. A large sea sponge applied over the incision with pressure prevents oozing, decreases secretion, and promotes agglutination of the wound surfaces, therefore decreasing healing time. I have used this procedure since 1923 without untoward results.

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### DISCUSSION

Dr. Ambrose H. Storck: In his study of pilonidal sinus, Dr. Gage has accomplished two things: He has made an original contribution by offering a reasonable explanation of the origin of this type of sacrococcygeal anomaly, and he has classified pilonidal cysts, and has organized the facts concerning these developmental defects from the standpoint of clinical practice.

Before the rather frequent occurrence of sacrococcygeal dermoid, or pilonidal sinus was generally appreciated, many of these lesions were overlooked, or at least were not recognized until infection and abscess formation supervened, and even then treatment in many cases was limited to incision of the recurring abscesses. On the other hand, for some years past, there has been a tendency routinely to resort to radical treatment, consisting of extensive resection of the sinus and surrounding tissue, sometimes combined with the shifting of gluteal skin and fat. Although wide excision is often necessary when there is much infection in the surrounding gluteal fat, in many instances a much less radical procedure is quite sufficient, and necessitates only a relatively short period of hospitalization.

The injection of pilonidal sinuses with iodized oil or a dye solution frequently presents some technical difficulties. The opening into the tract may be quite small, requiring the injection of a local anesthetic followed by dilatation. In order to prevent reflux of the injected solution, the tissue around the opening of the sinus may be squeezed tightly against the catheter or needle, whichever is being used, by means of a Smith hook or Allis forcep.

Dr. Gage has so thoroughly considered the embryology, pathology, clinical diagnosis, and treatment of pilonidal sinus that I am sure this piece of work will remain as one of the important contributions to the subject.

# THE COMMON SIGNS OF BRAIN TUMORS*

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NEW ORLEANS

The presentation of a paper on brain tumors is not inappropriate in a symposium on cancer, since a great number of such tumors, including all of the gliomas, are of a malignant nature. The principles of their management, furthermore, are the principles of the management of cancer elsewhere in the body, the chief differences being in matters of technic. An endeavor will be made to present the subject in a manner acceptable to men in general practice, without mention of specialized refinements in diagnosis, intricate syndromes and involved terminology, although it is realized that so elementary a discussion can be of little interest to men who have done special work in this field.

It may be stated categorically that brain tumors produce some signs and symptoms because of a general increase in intracranial pressure, and other signs and symptoms because of the particular region affected by them which makes them truly focal. On the other hand, it must be remembered that any intracranial lesion may, by pressure, traction, or interference with the circulation, so influence a more or less distant region as to produce false localizing signs. The same situation may also arise because of the interference of the lesion with connecting fibre tracts, pressure on a cerebellar peduncle being an example. It must be emphasized, too, that the present trend of thought is definitely away from the old idea of considering the brain as a collection of more or less distinct centers intimately connected but functioning independently, and toward considering it as an organ with some specialized portions but functioning as a single whole.

The cranial cavity is normally filled with brain, blood, and cerebrospinal fluid, the arrangement being such that considerable variation from the normal may occur before there is evidence of serious mischief. In the presence of an expanding lesion, however, pressure is inevitable sooner or later, in practically all cases, and must bear directly upon the brain itself, for the bony capsule, after closure of the sutures, cannot expand. If the growth does not interfere with the drainage of the ventricular system, or if it infiltrates and destroys rather than replaces brain tissue, it may attain a large size before producing an increase in pressure, though a very small growth which blocks any of the narrow channels of the cerebrospinal fluid outflow may produce an increase in pressure quite early.

The theory generally accepted today is that the cerebrospinal fluid is produced largely within the lateral ventricles, whence it passes to the third ventricle through small openings known as the foramina of Monroe. Passage to the fourth ventricle is through the narrow aqueduct of Sylvius, and escape from the fourth ventricle is by way of small openings centrally and laterally situated. From this point the fluid fills the subarachnoid space and the large cisterns about the brain, from which it is removed through the venous circulation. It is obvious that if fluid should be impounded anywhere along the channels just described, there would result a consequent increase in the amount proximal to the block, and that a hydrocephalus would result. A block at the foramen of Monroe, for instance, would cause a dilatation of the corresponding lateral ventricle. A block at the aqueduct of Sylvius would cause a dilatation of both the lateral ventricles and the third ventricle. A block at the foramina about the fourth ventricle would cause a distention of the entire ventricular system. Blocks at any of these points produce the type of lesion frequently described as internal hydrocephalus which is at the opposite extreme from the so-called communicating type, a widespread lesion causing interference with the absorption of the fluid and tending to dilate not only the ventricles but the entire subarachnoid space, including the cisterns. If these facts are borne in mind, it is easy to visualize the lesions resulting in hydrocephalus as tumors of the ventricles or tumors about the aqueduct or inflammatory lesions about the foramina of the fourth ventricle.

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The general effects of an increase in intracranial pressure include, first of all, the well known triad of headache, vomiting and choked discs, but many other symptoms are likely to occur also, alone or in combination, such as mental dulness or lassitude, vertigo, convulsions, visual disturbances, hallucinations, delirium and coma, though in a given case many or any of them may be absent. When the stage of increased pressure is reached the localizing signs lose some of their value, as they may be due to pressure and may not be associated directly with the lesion itself. Convulsions are an excellent example.

Headache is apt to occur in the course of every brain tumor and is often an early symptom, if not the first. It may be general or localized, though localized headache cannot be regarded as of focal value; occipital or subtentorial lesions, for instance, cause frontal headaches, and vice versa, or the headache may be on the side opposite the lesion. Headache caused by brain tumors may be constant and dull, with acute exacerbations, or remittent and extremely severe. It is apt to occur early in the morning and pass off in a few hours, and it is aggravated by any factor which tends to increase intracranial pressure, such as coughing, sneezing or straining at stool; this factor is probably responsible for much of the constipation associated with brain tumors, particularly in children harboring growths of the posterior fossa. In this type of tumor the headache is apt to be unremitting, and in pituitary tumors it is usually bitemporal. Headaches due to brain tumors are notably resistant to the usual curative measures. Brain tissue itself is insensitive to pain, and the headache associated with tumors is probably due to stretching of the dura. Localized percussion tenderness is rare, but may occur when a growth approaches the skull.

Vomiting is frequently associated with the headache and occurs more often in the early morning, when the headache is apt to be worse than at other times. Nausea does not usually accompany it, nor is it usually associated with the taking of food or drink. The spontaneous variety, which occurs without warning and from an empty stomach, is far more frequent than the projectile variety in which the vomitus emerges very forcibly and is projected in a stream to some distance, though textbook descriptions would seem to imply the contrary. When projectile vomiting does occur it is of great significance, for it is very suggestive of a cerebral lesion, though it is by no means pathognomic. Indeed, one would do well to reserve the diagnosis of cerebral vomiting until all other causes have been eliminated.

A complete examination of the eyes is imperative, the fundi and the visual fields being the vital points. It furnishes some information relative to seven of the twelve pairs of cranial nerves: the second, third, fourth and sixth, for obvious reasons; the fifth, which mediates the sensation of the cornea; the seventh, which closes the eye; and the eighth, disease of the vestibular portion of which may cause nystagmus.

Choked discs are most important; they may be associated with other conditions, it is true, but in probably 90 per cent of all cases they are associated with brain tumors. The choking, furthermore, is preceded by earlier changes, such as venous engorgement and tortuosities, and slight blurring of the margins. The progress or recession of pressure can frequently be checked by observation of the changes in the fundi. Visual acuity must also be determined, for it must be borne in mind that a high choked disc is not incompatible with good central vision, even though it causes a concentric contraction of the visual fields and an enlargement of the blind spot. Examination of the eyes may also reveal nystagmus, ptosis, pupillary inequalities and reactions, together with exophthalmos, squints, muscle paresis and paralysis. Diplopia, which is common, is generally due to weakness of the external rectus muscle, which is innervated through the sixth pair of cranial nerves. These nerves run a long and exposed course along the base of the skull, and are subject to involvement at any point, which means that weakness of the external rectus muscle, although it may help to lateralize the lesion, has little localizing value. A bilateral weakness indicates a lesion in the pons. The visual fields must be carefully considered, for while concentric contraction and enlargement of the blind spot are merely concomitant of choked discs, any notching of the field, whether homonomous, bitemporal, or, in rare cases, binasal is significant from a localizing standpoint, especially if it be symmetrical.

Vertigo or giddiness, dizziness, and swimming in the head are common. The symptom may be slight and transitory, occurring only on sudden changes of position, or so profound as to produce a severe degree of ataxia, making walking or standing impossible. Vertigo is frequently accompanied by nausea and vomiting. It is an outstanding symptom in lesions of the posterior fossa, in which case it is often accompanied by other signs as incoordination and other cerebellar phenomena. It must be emphasized that vertigo is associated with many other diseases and must not be regarded as at all pathognomonic of a brain lesion.

Convulsions, which would naturally be expected in tumors of the motor cortex, are surprisingly common in brain tumors in other locations, particularly the temporal lobe. Unless the attacks are localized, that is, confined to some particular part or parts of the body, they cannot be deemed focal signs. Many brain tumors are initiated by convulsions, and it seems wise to emphasize that in all such attacks occurring for the first time in middle or later life brain tumors must be excluded. The tonic or cerebellar fit, which is characterized by a general attitude of tonic extension, much like decerebrate rigidity, and which is seen mostly in children, is associated with lesions of the posterior fossa.

Hallucinations may be auditory, visual or olfactory and are to be expected in lesions associated with these special centers. When they accompany lesions in other regions they may be the result of a general increase in pressure, and they are apt to occur with the severest types of headache. The olfactory hallucination or uncinate fit is characterized by a sudden, almost flash-like sensation of smell or taste or both, usually of a vile nature, which disappears in a few seconds and is succeeded by a peculiar dreamy state of unreality. A persistent disagreeable smell is not an olfactory fit.

Mental changes are of all degrees and kinds, and may be either maniac or depressive in nature. On the depressive side there may be mere dulness or listlessness, or complete coma, while on the maniac side the change may vary from a moderate degree of euphoria to a wild state requiring mechanical restraint. Errors of judgment and antisocial behavior are very common manifestations.

Turning to the three great fields of general somatic musculature, sensation, and reflexes, it may be said briefly that the changes in the musculature include twitching and jerking movements, weakness, awkwardness, loss of speed, and even paralysis. It must be kept in mind that movements of individual muscles are more apt to be through cells in the anterior horns of the spinal cord, whereas cortical discharges tend to affect groups of muscles, producing purposeful movements. Sensory responses may be aggravated, reduced, or absent. The same holds true of normal reflexes, and various abnormal ones may also appear.

While the diagnosis of brain tumors still rests largely on the time-honored methods of history and physical examination, certain mechanical aids are available and should be employed as indicated. Chief among them is the roentgen ray. This type of examination may demonstrate the result of increased pressure, as shown by a thinning of the inner table of the skull directly over the convolutions, or by erosion of the dorsum sellae and the clinoid processes, which are the most usual findings. The bone over the tumor may be eroded or thinned, or may be markedly thickened. Large clusters of blood vessels occur about some types of tumor, and in many instances there is sufficient calcification within the growth to cast a distinct shadow. The internal auditory meatus may be enlarged by a growth, or a calcified pineal gland may be shown shifted from its normal position. In tumors in or about the sella characteristic bone changes are usually found, but one must not diagnose a sellar lesion merely on the basis of erosion of the dorsum and of the posterior clinoid processes, for this change can take place with increased pressure from any cause, because this region is the weakest area in the base of the skull.

Roentgenologic study by means of contrast media is another method of diagnosis. By one such method a portion of the cerebrospinal fluid is removed and replaced by air, which will cast a shadow. The air, which is lighter than the fluid, will seek the highest level, and by various movements of the head it can be made to outline the cavities and show any displacement or distortion. The exchange may be made directly into the ventricles, through trephine openings, or by means of lumbar puncture, both methods having their advantages. The introduction of air directly into the ventricles generally results in a better definition of their outline, but it requires an operative procedure to achieve it, and it carries a definite risk. Air introduced by means of lumbar puncture may not give so good a picture, but the procedure is not an operative one, and although it may cause the patient discomfort, it is associated with far less risk. This method is strictly contraindicated in lesions of the posterior fossa.

Other contrast media, in addition to air, have been used to visualize the cranial cavities. Such media can be injected directly into the carotid arteries, the pictures being made at once, before the opaque substance is swept out of the cerebral circulation. The interpretation of roentgenograms made by this method requires much experience and caution.

Spinal puncture as a diagnostic method in brain tumors is a questionable procedure. It is doubtful whether, in most cases, the information obtained warrants the risk. In tumors of the posterior fossa spinal puncture may release sufficient pressure below to allow a pressure cone to prolapse through the foramen magnum, and to bring about sudden death, and even in tumors above the tentorium such a pressure change may cause a jamming down of the tumor into the incisura tentorii and produce a grave crisis. Puncture of the cisterna magna has all the risk of spinal puncture, plus the possibility, in cases in which the cistern may have been entirely eliminated by pressure, that the needle, once it has penetrated the dura, may pass directly into the medulla. It would seem reasonable to say that if a case cannot be diagnosed without spinal puncture, the information so obtained would not make the diagnosis certain.

Metastatic tumors of the brain, which are relatively common, may be derived from tumors of any part of the body, the thoracic region and the kidney being particularly frequent primary sites.

In conclusion, it may be said briefly that the treatment of brain tumors is in general surgical. Some few may be treated with more or less success by roentgen ray or radium, but they are the exception, and their selection is very difficult. The time has long since passed when we were content merely to make a diagnosis of brain tumor and decide on the localization of the growth with a reasonable degree of certainty. Now we endeavor further, to formulate some conception of the type of growth to be dealt with, on the basis of its history and location, and the age of the patient, for upon such matters the questions of treatment and prognosis largely depend. The work of Cushing and Bailey is an excellent illustration of this modern method. Cushing was so impressed by the differences in behavior of the group of tumors classified as glioma that he and his pupils, notably Bailey, studied their cytology intensively, correlating the laboratory with the clinical findings in such a way that we have now available an excellent working basis for their classification even though it may not prove a final one. In the more malignant types the survival period is a matter of months, it is a matter of years in the less malignant types. If that question could be decided in all brain tumors, without surgical intervention or prior to surgical intervention, probably many of them would be treated by deep radiation, either alone, or in combination with simple decompression, rather than by extensive surgery, and the results might be much better.

### SUMMARY

This discussion has purposely been confined to the more common signs and symptoms associated with brain tumors. The idea has been to emphasize the clinical picture which should lead to a suspicion of the presence of a brain lesion, without regard to its localization. The whole subject may seem to be very gloomy, but it must be kept in mind that in many cerebral growths, one is dealing with cancer, and that a malignant tumor of the brain differs from such a tumor elsewhere in the body only because of its location. Many such tumors are inoperable, but so are many malignant tumors of the stomach, the pancreas, the kidney and other organs. Many of them can be treated only by a palliative decompression operation, but many other tumors can also be treated only by such palliative procedures as gastroenterostomy, cystostomy and colostomy. The fundamental principles are the same everywhere, and in the brain, just as in other organs, the solution of the problem rests chiefly upon early diagnosis.

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# PYELITIS*

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NEW ORLEANS

Pyelitis in the strict sense of the term practically never occurs. Infection of the renal pelvis is almost invariably accompanied by inflammation of the renal parenchyma. The observations that are to follow will, therefore, embrace in a truer sense, the field of pyelonephritis.

At the risk of appearing at times trite, we shall attempt to emphasize the fundamental aspects of the problem, placing lesser emphasis on the theoretical side. Needless to say, pyelitis is one of the most frequent conditions which the practitioner encounters and he should be familiar with its symptoms, its diagnosis, and its treatment.

### CLASSIFICATION

Pyelitis may be considered to present itself in three main groups: (1) infancy; (2) adulthood; (3) pregnancy. In each of these, we must deal with acute and chronic forms. Furthermore, in all the groups it is important to differentiate between the obstructive and the non-obstructive types.

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### ETIOLOGY

In the vast majority of cases, the colon bacillus is the offending organism. Less frequently, staphylococci, usually aureus or albus, and streptococci occur.

Rarely the condition is produced by typhoid bacilli, pneumococci, or gonococci. In our experience, other causative micro-organisms are so rare that they need not here be considered.

From the standpoint of prevention, as well as that of diagnosis and of therapy, it is important to remember that pyelitis is generally secondary to infection elsewhere. Frequently, the lower genito-urinary tract is the focus from which the kidney is infected. Particularly is this true in the female, as the vagina is in close proximity to the very short urethra. From a lower focus, the infection ascends to the kidney pelvis by way of the lymphatics, rather than as was formerly thought by extension, via the mucosa. A group of Harvard investigators, working with animals, have shown that organisms are not carried upward by reflux, because when bacteria and finely powdered charcoal were placed in the urinary bladder and the urethra ligated, no charcoal could be found with the infection, which had reached the renal pelvis. They showed further by serial sections of the ureters that there was an increased number of lymphocytes around the lymphatics. It is generally known, however, that in patients who have a dilatation of the ureter, allowing a reflux of urine, the infection may be carried directly upward.

Many authorities believe that the etiologic agents are carried to the kidney by the blood stream more frequently than by the ascending route. Obviously, in these cases a septicemia, usually low-grade, with primary foci in the teeth, tonsils, sinuses, or other areas of localized infection pre-exists. We have shown experimentally, working on dogs, that cocci attack chiefly the glomeruli, whereas bacilli find their site of predilection in the tubules. For this reason we may expect many small metastatic renal abscesses in the coccal infections, while fewer suppurative parenchymal lesions occur in the bacillary form.

Less frequently pyelitis is produced by direct extention of inflammatory processes from adjacent organs: viz., hepatic abscess, diverticulitis, appendicitis, or salpingitis. Occasionally, it may be found as a result of penetrating wounds or contamination by foreign bodies introduced through the lower urinary tract.

### SYMPTOMS

The early symptoms and signs will vary with the mode of invasion. In those cases in which the pyelitis occurs as a result of upward extension, we may expect early evidence of infection below. Thus, there may be a history of frequency, burning on urination, and possibly urgency, tenesmus, or even terminal hematuria. On the other hand, the bladder infection may produce so slight an irritation that it will cause only a frequency prior to the onset of the pyelitis. Often the patient will recall no abnormality at all and attention will be directed to the kidney only after exhaustive search for the cause of the unexplained fever.

As the result of the absorption of toxins, the patient may present a history of general malaise. Proponents of the blood stream type of invasion quite rationally claim that the feeling of general debility is more frequent and marked in this type of the disease.

All of the acute cases have fever, generally remittent in character, the height and constancy of the elevation of temperature depending upon the extent of the parenchymal involvement rather than from that of the pelvis. However, we must remember that in purely pelvic involvement, the degree of pelvic or uretral obstruction will have a distinct influence in determining the extent and character of the temperature. In practically all of the cases there is a history of recurrent chills or chilly sensations. These are usually of a mild character, although at times they simulate definite rigors.

The patient, in many instances, will have noticed a cloudy discoloration of the urine. He may complain of lumbar backache, characteristically worse in the costo-vertebral angle.

In children, gastrointestinal symptoms, such as nausea and vomiting, and occasionally abdominal pain and diarrhea may predominate. Convulsions rarely occur, but when they do they are usually associated with very high fever.

In granular pyelitis intermittent hematuria is almost a constant finding. For this reason a history of bloody urine, particularly if it occurs during pregnancy, should arouse suspicion of this condition.

Although there is usually a history of an acute attack in chronic pyelitis, there may be evidence of a low-grade cystitis and nothing more. In many instances, this is thought to occur following the kidney infection. As a rule, however, chronic infections are associated with some type of obstruction due to stones, tumors, strictures, or ptosis. Obviously, the symptoms in these cases vary with the degree of obstruction and the virulence of the organisms.

### DIAGNOSIS

An examination of the freshly catheterized specimen of urine is of the greatest importance in the diagnosis of pyelitis but the mere presence of pus cells should not lead to a hasty conclusion. Infections of the lower urinary tract, notably chronic urethritis, prostatitis, foreign bodies in the bladder, and diverticula, may be responsible for the pyuria. On the other hand, the presence of any one of these conditions does not necessarily rule out pyelitis since it frequently occurs in association with them. As a general rule the lower urinary tract infections can be eliminated by routine methods of physical examination, but in the more obscure cases, especially if the pyelitis is of such low-grade character as to produce no local signs, cystoscopy should be employed.

Tenderness in the renal area may be a valuable sign in the diagnosis of pyelitis when it is present, but its absence is of no practical value due to the fact that it can be elicited only in those cases in which there is distention of the pelvis and the calices or in those in which there is marked parenchymal involvement.

In the pyelitis of pregnancy there is nearly always considerable distention of the kidney pelvis. For this reason, tenderness is fairly constant in these cases. On the contrary, in pyelitis of infancy we have found this sign to be rare because stasis is usually minimal.

Not infrequently the diagnosis depends upon the elimination of other conditions which may simulate renal infection. Acute inflammation of the appendix, of the salpinges, and occasionally of other viscera in contact with the ureter, frequently cause sufficient inflammatory reaction in that structure to produce pus cells. These cases have a proportionately higher ratio of erythrocytes in the urine. As a rule, the markedly different temperature curve together with the physical finding will make differentiation of the above conditions fairly easy.

Other extra-renal conditions which simulate pyelitis, including malaria and typhoid fever, infrequently or practically never produce pyuria. Here again, the characteristic physical findings such as the presence of an enlarged spleen and laboratory aids usually make differential diagnosis comparatively simple.

Cortical infections of the kidney, besides producing a pyuria, cause the excretion of casts, a more constant and higher temperature, and less fluctuation of the pulse than is usually found in pyelitis. Involvement of the perinephric area which, as a rule, results in marked tenderness and rigidity, ordinarily presents a less difficult problem in diagnosis.

Post-partal pyelonephritis, a condition which we believe occurs more frequently than is generally recognized, often presents no reliable physical signs, and may be overlooked even though the urine is examined, since trauma at the time of delivery often causes pyuria. Cases of persistent post-partal fever which cannot be definitely attributed to other puerperal infections should, therefore, be subjected to cystoscopy if a correct diagnosis is to be made.

### TREATMENT

Most of the acute cases of pyelitis in infancy and non-pregnant adults will respond readily to general constitutional care, including: rest in bed, bland diet, mild laxatives, and forced fluids. We have noted a slight advantage in the early administration of abundant quantities of alkalies, particularly in the treatment of children. As a routine procedure, if the infection does not respond to this treatment in from five to seven days, we discontinue the alkalies and administer to adults ammonium chloride and methenamine (urotropin), while in children, caprokol for a similar period. It is important in changing the acidity of the urine to give large doses since it has been conclusively proved, experimentally and clinically, that the hydrogen-ion concentration must be below 5.5 to produce the best results. Generally, we give a dosage of about 120 grains of ammonium chloride a day. We have observed little or no benfit from the administration of ammonium chloride or any other acidifying agents in cases in which there is any considerable impairment of renal functon, obviously for the reason that it is not excreted in sufficient quantities to lower effectively the hydrogen-ion concentration. The presence of renal stones also appears to militate against the successful acidulation of the urine. It will be noticed that we employ ammonium chloride rather than sodium acid phosphate, as we have found the latter to be far less efficient. The administration of concentrated hydrochloric acid, 15 drops, (approximately 1 c. c.) in 8 ounces of water followed by 8 ounces of water three times a day, seems to be of definite value in adult cases.

In an effort to obtain a marked change in the hydrogen-ion concentration, some men have even gone so far as to advocate the restriction of fluids, with the view of producing higher acidity by decreasing the urinary output. If it becomes necessary to choose between the two, we have found it definitely advantageous in the great majority of cases to administer copious amounts of liquids with a view of lavaging the renal pelves.

Advocates of the administration of the various dyes, such as pyridium, serenium, mallophene, acriflavine, mercurochrome, and gentian violet, have reported good results, but in our hands they have been of questionable value except for the psychic effect.

Striking results in the treatment of pyelitis by the ketogenic diet have been recently reported. To be effective this procedure requires strict supervision and the proper selection of cases by preliminary culture to determine the type of organisms responsible for the infection. When used, it is customary to administer daily one gram of protein per kilo of body weight, at first with a moderate amount of carbohydrates and a slight excess of fats, later with a gradual decrease in the carbohydrates and a corresponding increase in the fats until the lower fatty acids in the blood are inadequately oxidized and ketone bodies are excreted in the urine. Helmholtz, of the Mayo Clinic, has observed that the urine should contain more than five hundredths per cent concentration of beta-oxybutyric acid and a hydrogen-ion concentration of less than 5.5.

Occasionally, in cases of pyelitis associated with atonic conditions of the pelvis and the ureter, the administration of surgical pituitrin in doses of 3 to 15 minims every four to eighteen hours appears to have been of value. This drug is of further use in determinging the presence of obstruction since it will cause an increase of pain in the distended renal pelvis. Caution should be observed in its administration in cases of myocarditis, arteriosclerosis, hypertension, and pregnancy.

In cases of pyelitis not responding to conservative treatment, the physician must resort to cystoscopy. In pyelitis of infancy and in the non-pregnant adult, failure to respond to the therapeutic measures outlined above within a reasonable time, which we arbitrarily set at from two to four weeks, is usually evidence of an obstructive lesion or an anomaly. In these conditions it is necessary to remove the contributory cause before the infection will disappear. It is generally advisable in the acute stage to restrict cystoscopic manipulation to the passage of ureteral catheters and lavage of the kidney pelvis. Later, when the acute symptoms have subsided, pyelography may be employed as a diagnostic aid if the cause of the stasis has not been determined.

Since in the pyelitis of pregnancy there is nearly always present considerable urinary stasis, we are convinced that a much shorter interval should elapse before the patient is cystoscoped. In acute pyelitis in which there is marked stasis, it is preferable to resort to the indwelling ureteral catheter which should be allowed to drain the pelvis continuously from 24 to 48 hours.

After the hyper-acute stage has passed pelvic lavage with a solution of nitrate of silver, ¼ to ½ per cent, will usually cause the infection to subside rapidly if the contributory cause has been removed. The dilatation of strictures, the removal of stones, and the correction of anomalies must be done to help eradicate the infective process. General foci of infection such as teeth, tonsils, sinuses, and prostate gland should not be neglected.

### CONCLUSIONS

1. Pyelitis and pyelonephritis are of suffi-

ciently common occurrence to merit the consideration of all medical men, whether they be general practitioners or specialists.

2. The presence of renal infection should be suspected in every case of unexplained fever, vague abdominal pain, lassitude, and other more or less remote symptoms, as well as in cases which have urinary frequency, pyuria, or other symptoms or signs more directly referable to the urinary tract.

3. The differential diagnosis between pyelonephritis and other causes of abdominal pain is often difficult. For this reason all possibilities should be thoroughly investigated. The removal of appendices thought to be chronically diseased, in cases in which pyelitis is actually the cause of the symptoms, is probably one of the most frequent errors in surgery. We believe that it is preferable to subject a patient to cystoscopy, if there is only a suggestion of possible urological lesions rather than to submit him or her to an abdominal operation when the kidney is actually at fault.

4. The administration of copious amounts of fluids is the most valuable factor in the treatment of acute uncomplicated renal infections.

5. A change of the reaction of the urine is of value.

6. Lack of response to conservative treatment within a reasonable period of time is usually an indication of pathology which can be discovered and may be treated by cystoscopic manipulation. In order that the best results be obtained the urologist should see the case before irreparable damage has been done.

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# UTERO-SALPINGOGRAPHY AND UTERO-TUBAL INSUFFLATION IN STERILITY*

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As Bethel Solomons[21] has said, "sterility is a disease; a disease which can bring misery into the home. The craving for a child may become worse than many diseases." Primitive woman, hoping to realize the desire for children, resorted to the witch doctor, whom she thought could cure her barrenness with his mystical power. Charms and other superstitious measures kept her hopes rekindled until old age supervened. Many modern women resort to all sorts of foolish expedients in the hope of lifting the ban of sterility.

Our knowledge of the causes and treatment of sterility has been all too meagre until recent years brought marked advancement in endocrinology and in the study of the patency of the fallopian tubes. Now the work of Rubin[15] on insufflation, and of Cary[18] in utero-tubal salpingography, has paved the way for a more thorough study and treatment of the sterile woman. Obviously, the determination of the tubal patency is only a part of the investigation of sterility. Interest in the chemical and serological aspects of human reproduction have been steadily increasing. We will consider in this paper only the diagnostic and therapeutic value of utero-salpingography and utero-tubal insufflation.

## UTERO-TUBAL INSUFFLATION

Insufflation is an office procedure. Patients usually return home to their regular routine after the insufflation. The most favorable time for insufflation is after the post menstrual phase, from the fourth to seventh day after cessation of menses. This precludes interference with a possible pregnancy.

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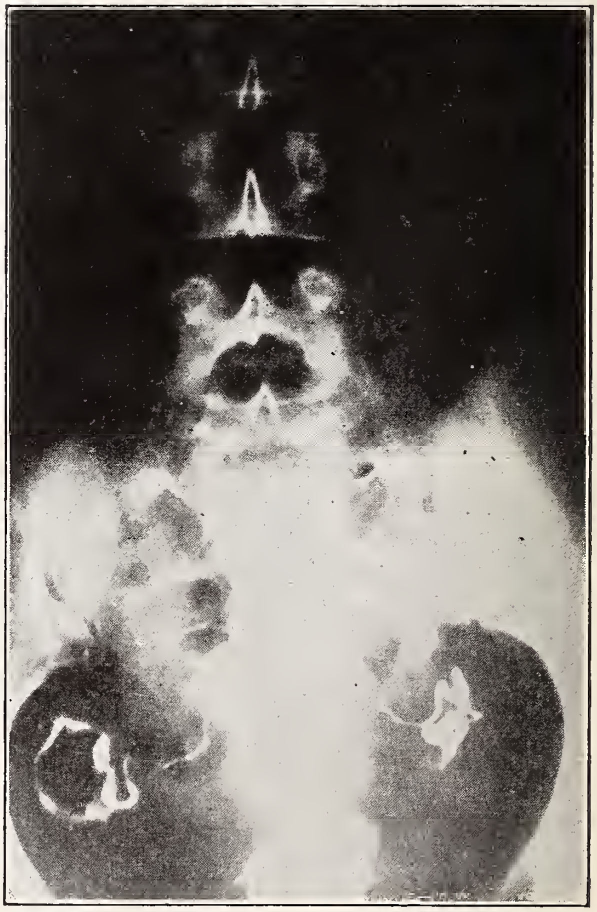
The cardinal indication for insufflation is to determine the patency of the fallopian tubes. Rubin lists the following indications for insufflation:

1. In deciding upon the advisability of an operation to relieve sterility.
2. As a postoperative measure to test and maintain the patency of the newly formed stoma (salpingostomy, salpingolysis, and tubal reimplantations into the uterus).
3. To check the results of a tubal sterilization operation.
4. To determine the secondary effect upon the tubes of induced abortions, uterine retro-displacements and appendicitis.
5. To determine the condition of a residual tube after tubal pregnancy.
6. To study the physiology of the tubes, especially in such conditions as functional amenorrhea during the reproductive period, during the menopause and following roentgen ray castration.
7. To determine the tubal status before prescribing contraceptive measures in suitable cases.
8. As treatment for dysmenorrhea.
9. To produce a pneumo-peritoneum as an aid in the diagnosis of obscure abdominal lesions.
10. Its application has been extended by veterinarians to valuable breeding animals where sterility was traceable to abnormalities of tubal patency.

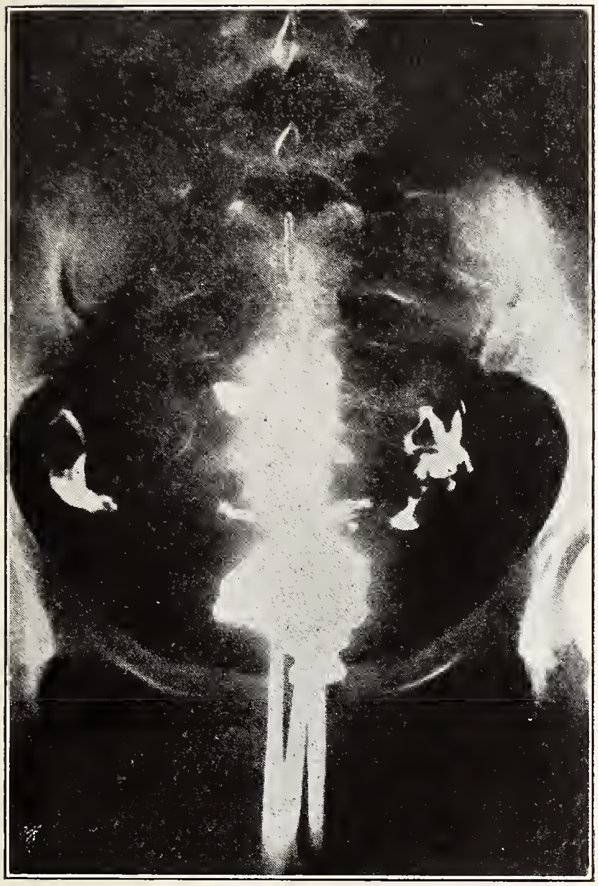
Acute or subacute inflammation of the genital tract, such as salpingitis, endocervicitis, colpitis, menstruation or abnormal bleeding from the genital tract and pregnancy, are all contraindications to insufflation.

In patent tubes, the initial rise of the mercury manometer is usually not over 100, with a drop between 20 and 70 millimeters of mercury. Where the tubes are closed or strictured, the mercury may rise to 200, where it will stay if the tube is completely closed. Many cases need four to six insufflations before the tubes finally open. It is remarkable how soon pregnancy frequently follows the first successful opening of the tubes. Quite often the amount of pressure required gradually decreases with each test. Referred pain to the shoulder when gas reaches the subdiaphragmatic area is diagnostic of patency of one or both tubes.

A good prognosis can be given patients with normal tubal patency and function, provided there are no other causes of sterility. Repeated insufflations in stenosed or adherent tubes may frequently open the tubes sufficiently for pregnancy to take place, but the prognosis must be very guarded. Insufflation in dysmenorrhea has frequently proved a good therapeutic measure. Utero-tubal insufflation should be done soon after operation for tubal pregnancy, to determine the patency of the residual tube and also to keep the tube patent,



Injection of uterus and tubes with lipiodol; note length of tubes; taken after second injection.



Uterine cavity shows no abnormality; tubes patent; speculum removed; tenaculum and cannula showing.

provided an attempt to open the residual tube was made at time of operation.

### UTERO-SALPINGOGRAPHY

Utero-salpingography today has gained a merited place in the armametarium of the gynecologist. Rubin, in 1920, reported his studies on transuterine insufflation, which soon was combined with transuterine pneumo-peritoneum and roentgen ray to demonstrate the pelvic organs. In an effort to gain more knowledge of the patency of the fallopian tubes, many different kinds of radio-opaque substances were injected. Cary,[18] in 1914, first attempted to get roentgenograms of the pelvis, using collargol to inject the uterus and tubes. Heuser[24], of Buenos Aires, in 1921, used lipiodol first for hystero-salpingography. Lipiodol since that time has been widely used and publicised as an ideal iodized oil for injection into the uterine cavity and tubes.

Many claims have been made for utero-salpingography, varying from a very conservative to an extremely radical. Sturgis[11], outlining the policy of the sterility clinic at the Hospital of the Woman's Medical College of Pennsylvania, delineates well the conservative estimate of the use of hystero-salpingography as follows:

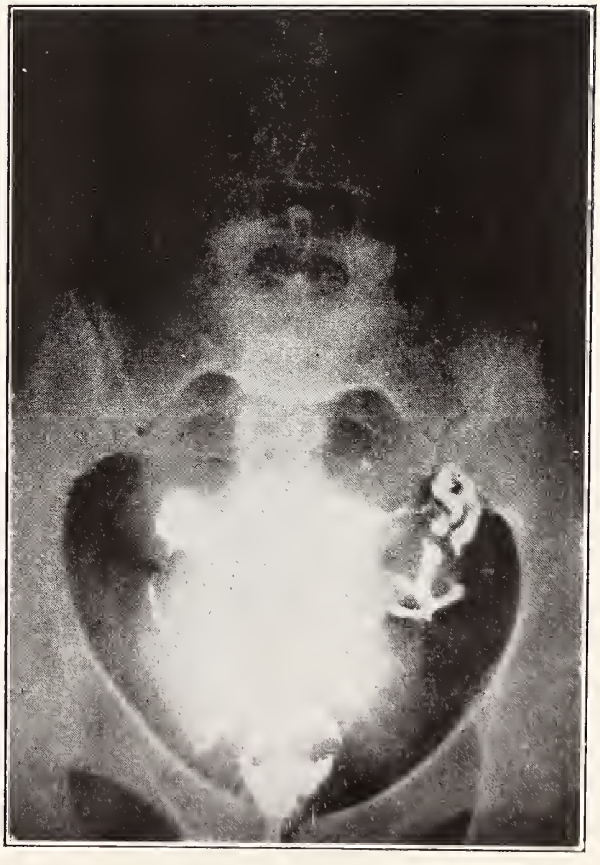
1. All cases with patency of the fallopian tubes when the Rubin test, the palpatory findings or other diagnostic methods employed in investigation have failed to furnish satisfactory explanation of the cause of sterility.

2. All cases of tubal occlusion as demonstrated by a previous Rubin test, for determination of:

   a. Whether the occlusion of the tubes is unilateral or bilateral;
   b. Location of the occlusion.

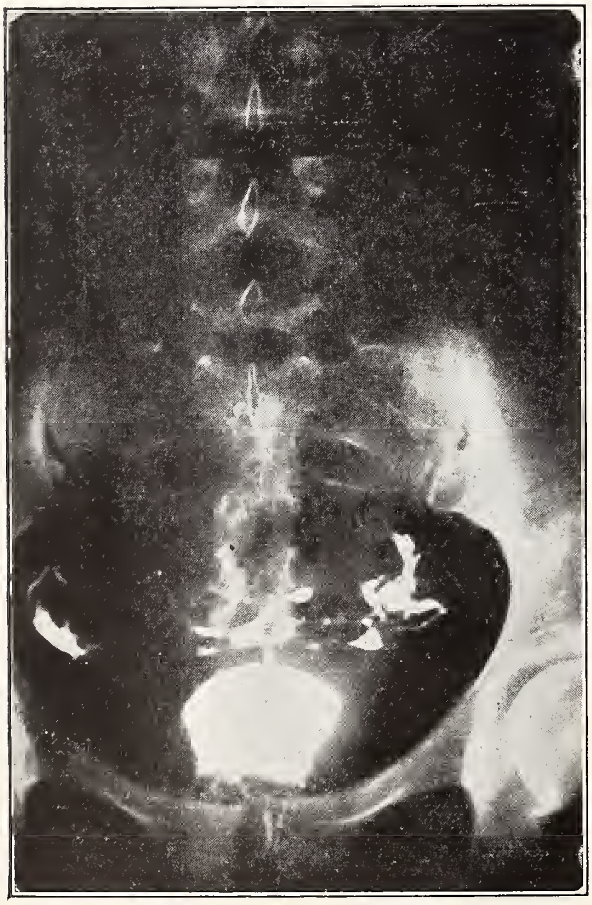
A definite record is made of the length, size, and position of the tubes, with the amount of the opaque medium which "spills" into the peritoneum. The position and size of the uterus is definitely on record.

The optimal time for salpingography is from



Tubes well dilated but spill into pelvis evident; no deformities in uterine cavity.

the fourth to seventh day following the cessation of menses. It may be done in the office, provided the necessary roentgen ray equipment is available. The patient is requested to take a light cathartic the night before, an enema and douche before coming to the office. To the very nervous patients, we give some of the barbiturates. The equipment we use is simple, being a cannula, a mercury manometer, vaginal speculum, tenaculum and lipiodol warmed to body tempertaure. The cervix and cervical canal is swabbed with merthiolate, the tenaculum applied to the anterior or posterior lip of the cervix. The flexible cannula is then inserted into the cervical canal until the rubber shoulder fits the external os. The lipiodol is then injected slowly, until 4 to 8 c.c. are injected or the patient complains of some pain in the tubes. A roentgenogram is taken at this time. The vaginal speculum is then removed, and the vagina swabbed out to remove any leakage of lipiodol and a second picture taken. Films may again be taken at six and twenty-four hours.



Last injection of lipiodol; note speculum, tenaculum and cannula removed; note spill into vagina, with some lipiodol in uterus and spill into peritoneum.

Due to the reports in the literature of accidents following the use of lipiodol, such as the entrance of lipiodol into ovarian and uterine veins, or peritoneal irritation, we have been using neo-iopax for several months. Very satisfactory films are obtained and the medium will do no harm if it enters the circulatory system. Hyams[2] recommends interrupted fractional injection of lipiodol. The advantages claimed are the absence of cramp-like pains and the lessened danger of entrance into the uterine veins, as the oil is never under pressure. Five separate injections of 2 c.c. each are made, with roentgen ray exposure after each injection. Errors in technic are controlled by developing the films after each exposure. The patient is requested to return in twenty-four hours for the final exposure.

### DISCUSSION

More detailed study of human sterility in the past fifteen or twenty years has revealed many causative factors which had been underestimated and a reinterpretation of the functional, chemical, and serological aspects of human reproduction has been necessary. Utero-tubal insufflation and salpingography have played a very important part in the revision. The importance of determining the patency of fallopian tubes in any study of a sterile mating has been well established. The therapeutic value of insufflation and the injection of iodized oils have been attested to by many writers. A review of the literature reveals many case reports worthy of mention. Rubin reports the collection of 764 pregnancies from the literature and personal communications, all attributed directly to insufflation. Witmer, Cushman and Leucutia, in 1930, reported 25 cases of pregnancy following utero-salpingography in sterility studies of occuled tubes, Robbins and Shapira[21], in 1931, reported 32 pregnancies following injection of 133 cases, in which one or both tubes were found to be or caused to be patent by injection of lipiodol. The therapeutic effect of any method for the relief of sterility is best judged by the number of pregnancies following within a reasonable period thereafter especially in those cass of five or more years of sterility.

### SUMMARY AND CONCLUSIONS

1. Utero-tubal insufflation is an office procedure and may be done repeatedly without fear of serious sequelae.

2. Contraindications to insufflation or salpingography are menstruation or pre-menstrual phase, genital inflammations, pregnancies, abnormal bleeding from genital tract and severe constitution diseases.

3. The most favorable time for either procedure is the post-menstrual period, from the fourth to seventh day following cessation of menses.

4. The therapeutic value of both procedures in sterility has been demonstrated, many pregnancies have followed their use.

5. Insufflation in dysmenorrhea has proved of value.

6. Utero-salpingography has been found to be of especial value where it is desired to determine whether one or both tubes are occluded and to locate the occlusion. It is used frequently where insufflation has failed to furnish the exact explanation of the sterility.

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# NEWER METHODS IN DIAGNOSING EARLY CARCINOMA OF THE CERVIX*

CURTIS H. TYRONE, M. D.†
NEW ORLEANS

The treatment of carcinoma of the cervix has become standardized in the various clinics, but the mortality from this disease has not been reduced. During the last few decades there has been no new development in the application of surgery to increase further its effectiveness or value in the control of cancer. Nor has there been any new technic evolved to render the use of radium or the roentgen ray a more perfect means of treatment and cure. Until we know more about the etiology of cancer these are the only weapons we have to depend upon in waging the fight. The miraculous "cancer cures" hawked at intervals to an ever-hopeful profession and a willingly gullible, lay public have only proved to be flares in the dark. In our efforts to reduce the mortality from malignancy of the uterus we have become convinced that at present our only hope lies in diagnosis of the condition in its very earliest stages.

Approximately 15,000 women die each year in the United States from carcinoma of the uterus. In 1932, in the State of Louisiana, there were 1500 deaths from all malignant tumors of which 296, or approximately one-fifth, were from carcinoma of the uterus. These were the reported cases. It is beyond dispute there were many unreported cases. By early diagnosis, it is estimated the mortality from carcinoma of the cervix can be prevented in 95 per cent of the cases. This would mean that each year there is a useless sacrifice of approximately 300 lives in the State of Louisiana alone. The mortality rate for carcinoma of the cervix in the country at large is 90 per cent. This can only be reduced by early diagnosis. Diagnosis made when the patient reports for treatment even at the very onset of symptoms is by no means early diagnosis. The text-book symptoms of leukorrheal discharge, bleeding, and pain are only present after the disease has become established and is past the early stage, and at that time diagnosis is possible by palpation and visualization. These symptoms were labelled by my former chief, Dr. C. Jeff Miller, as symptoms not of carcinoma of the cervix, but as symptoms of death. Norris points out that cervical carcinoma usually becomes inoperable in from three to five months after development of the initial symtoms, and its progress is more rapid in some instances. Carcinoma of the cervix in the beginning is symptomless, and if diagnosis can be made during this period, before the ulcerative, invasive stage, there would be some possibility of effecting a cure in 95 per cent of the cases.

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*Read before the Orleans Parish Medical Society, November 25, 1935.

†From the Department of Gynecology, Tulane University.

The primary difficulty obviously lies in being able to secure the opportunity to detect carcinoma of the cervix when it is in this early stage before onset of symptoms. This is possible at times when the patient applies to the gynecologist for other conditions. Every woman around the menopausal years has, if not an active fear of carcinoma of the uterus, at least an apprehensive dread of it, which keeps some away from the doctor's office even after the inception of suspicious symptoms in the belief that "Where ignorance is bliss, 'tis folly to be wise." On the other hand, it draws a few into the doctor's office for a routine yearly examination and the assurance that no malignancy exists. Periodic pelvic examinations offer an effective means of diagnosing early carcinoma of the cervix and thereby reducing the mortality.

In recent years, two aids have been devised for the diagnosis of early carcinoma of the cervix, i. e., before it reaches the ulcerative stage: the Schiller iodine test and the colposcope.

In the Schiller test, iodine in the form of Gram's solution is applied over the portio vaginalis. The normal squamous epithelial cells contain glycogen which absorbs the iodine, and these areas stain a deep mahogany brown. In the areas of beginning malignant change, the cells have become atypical, with atypical nuclei, have lost their glycogen, and therefore do not accept the stain but appear as pinkish or faintly stained regions. However, this non-staining quality is also distinctive of other conditions, and it must be emphasized that the Schiller test is only an aid to facilitate diagnosis of early carcinoma and that it is not a proof of the presence of carcinoma. It acts as a sign-post to point out the suspicious areas from which sections are removed with a sharp curet, or scrapings secured for histologic investigation. Carcinoma which has reached the invasive stage will take the iodine stain, but at this phase it has passed the early stage and can readily be diagnosed without the use of the Schiller test. Areas of erosion will confuse the picture and where eversion is present, the columnar epithelium does not absorb the iodine. Nabothian cysts take the stain to a lesser extent than normal tissue.

Care must be exercised in manipulating the cervix for this test not to traumatize the epithelium by too vigorous sponging with gauze or accidental scraping with the speculum or curet for as Graves points out, the pathologic cells which will not take the stain lie only two or three layers deep, and it is very easy to inadvertently remove them, resulting in the area taking the iodine stain and thus obscuring the picture.

If the cervix is clinically diseased, yet is negative to the Schiller test, presenting none of the white or faintly stained areas diagnostic of beginning malignancy, it must not be concluded, therefore, that the cervix is normal. On the contrary, if the suspicion of disease is strong enough to lead us to make the test, the condition certainly warrants some form of treatment to prevent the development of malignancy in the future. The chief value of the Schiller test as a diagnostic aid in the detection of early carcinoma of the cervix lies in the fact that it enables us to apply treatment earlier than we have been able to in the past. It makes us cancer conscious and places in our hands a simple test which can be carried out routinely in all pelvic examinations without extra equipment and at practically no cost. The general practitioner can use the test and by so doing he, too, will become more cancer conscious.

The colposcope was devised by Hinselmann of Hamburg and later modified by Preissecker and others, and constitutes one of the greatest advances in the last few years in the diagnosis of pre-malignant or early malignant lesions of the cervix. This instrument is nothing more than a microscope or telescope, which allows us to view and study the various cell changes taking place without actually removing tissue. Its use causes the patient no more inconvenience than would an ordinary vaginal examination with a speculum. With the colposcope, it is possible to detect a carcinomatous area measuring 4 to 5 millimeters, and even smaller areas using a greater degree of magnification, in fact, so minute a region that it could not be seen with the naked eye, and which it would be an utter impossibility to palpate. An important prerequisite for its use, however, is an accurate knowledge of the appearance of the physiologic structure of the cervical mucous membrane in order that the correct interpretation may be placed upon pathologic changes. We must hold in our mind's eye a picture of the normal cervix as it would look through the colposcope, a picture which would reveal no lacerations, no erosion around the external os, and no areas of leukoplakiae. Skill in differentiating the normal from the abnormal cervix comes with experience in colposcopic studies, just as it does in reading the deviations from the normal in pathology and roentgen ray.

The most common place for the development of malignancy is at the edge of an erosion where there has been an attempt at healing. Naturally, we would expect to find more cell changes at that point than in the normal portion of the cervix which is covered with squamous epithelium. Through the colposcope, it is possible to discern the least change suggestive of carcinoma, leukoplakiae, as well as minute ulcers, no larger than one quare millimeter. In the so-called leukoplakia can be observed the early malignant changes taking place, i. e., excessive growth of surface epithelium and hornification of cells. As a result of the hornification of the atypical epithelium, these leukoplakiae appear as pearly white patches. Malignant leukoplakiae have the same appearance through the colposcope as the so-called benign leukoplakiae, therefore, biopsy material from these areas is necessary in order to make an exact diagnosis.

The colposcope has a distinct advantage over the Schiller test because with it erosions of the cervix can be studied which is not possible with the Schiller test. It furnishes a surer method of obtaining biopsy material. For instance, two areas may look identical to the unaided eye, but through the colposcope it is possible to differentiate that one of these areas is normal and the other presents a section of proliferation of the epithelial elements, that the cells are becoming atypical when compared with the surrounding epithelium.

The treatment of carcinoma of the cervix, as we have already stated, has practically become standardized in all clinics. Radium is always preferred to hysterectomy where the disease is well developed. I believe that in certain cases where it can be determined that the carcinoma is located in the cervix only, without metastasis, or in cases where we are able to make the diagnosis with the two tests I have spoken of, that hysterectomy is indicated. In the following table I have reviewed the cases of carcinoma we have had in our service during the past five years. During the past two years, our incidence of hysterectomy has increased remarkably. This is due to the fact that in the past few years we have discovered many cases of very early malignancy of the cervix before symptoms appeared, and which, therefore, were ideally suited for hysterectomy.

|  | Total Number Of Cases | Radium | Hysterectomy |
|---|---|---|---|
| 1931 | 22 | 18 | 4 |
| 1932 | 30 | 27 | 3 |
| 1933 | 35 | 29 | 6 |
| 1934 | 44 | 25 | 19 |
| 1935* | 27 | 16 | 11 |

*First ten months.

In our opinion, it is essential that every woman within the limits of the "cancer age" should undergo a colposcopy, or a Schiller test, or a combination of both, at least once a year, preferably oftener, if we are to diagnose carcinoma of the cervix in its incipiency. Only by the preventive measure of early diagnosis will we be able to reduce the mortality.

### CONCLUSIONS

To reduce the mortality of carcinoma of the cervix early diagnosis must be made.

Routine use of the Schiller test and the study of the diseased cervix with the colposcope enables us to make a diagnosis before symptoms have begun.

All women should be urged to have a yearly examination especially if there is a history of difficult delivery or pelvic infections.

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# REPORT OF THE PASTEUR INSTITUTE OF THE CHARITY HOSPITAL OF NEW ORLEANS FOR THE YEAR 1935

RIGNEY D'AUNOY, M. D.*
and
JOHN H. CONNELL, M. D.*
New Orleans

During the year 1935, the Pasteur Institute of the Charity Hospital administered antirabic prophylactic treatment with material prepared as generally indicated by Semple**. Each injection consisted of a 2 mil portion of 4 per cent killed virus-emulsion, except in the case of children under three years of age, to whom a 1 mil portion of vaccine was injected at each treatment.

### INJURIES BY PROVEN RABID ANIMALS

*Head Injuries*: Injections were made twice daily for the first seven days, and once daily thereafter for fourteen days.

*Injuries to Trunk and Extremities*: If multiple and severe, the same treatment was used as for head injuries.

If slight and treatment was begun within six days after injury, treatments were continued for fifteen days, with one injection daily.

If slight, and treatment was begun more than six days after injury, treatments were continued for eighteen days, with one injection daily.

### INJURIES BY UNLOCATED ANIMALS

If the injury was received under suspicious circumstances, the same type of treatment was used for a similar type of injury by proven rabid animals. If there were no suspicious circumstances, treatment was given over a period of fourteen days, with one injection daily.

### NO ACTUAL INJURY

If rabid or suspected animals had been handled, treatment was given over a period of eighteen days, with one injection daily.

### TREATED CASES

Two hundred and sixty-nine cases were treated during 1935. They are classified as follows, according to the suggestion of the International Rabies Conference of the League of Nations, in order that the statistics of various institutions may be compared.

A. Cases in which the animal proved to be rabid (by microscopic and biologic test).

B. Cases in which the animal was diagnosed clinically as rabid.

C. Cases in which the animal was only suspected to be rabid (strayed, destroyed, or in such a condition when received that the brain was unfit for examination).

D. Cases in which the animal was alive and well after an observation period of three weeks, or whose brain was found to be negative when examined after the observation period.

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*From the Departments of Pathology and Bacteriology of the Lousiana State University Medical Center and the Charity Hospital, New Orleans.

**For the method of production of virus, see Reports of the Pasteur Institute for 1931-32. New Orleans Med. and Surg. Jour., 86:236-238, 1933.

E. Cases in which the patients received treatment without actually having been bitten (patients who handled rabid or suspected animals).

Table I records the number of treated cases in each category and classifies the types of injury.

TABLE I

| | Category 1935 | | | | | |
|---|---|---|---|---|---|---|
| Location of Injury | A | B | C | D | E | Total |
| Head | 6 | 0 | 13 | 1 | 0 | 20 |
| Body | 2 | 1 | 2 | 1 | 0 | 6 |
| Superior Extremities | 39 | 0 | 48 | 3 | 29 | 119 |
| Inferior Extremities | 41 | 0 | 55 | 2 | 5 | 103 |
| Multiple sites | 0 | 0 | 21 | 0 | 0 | 21 |
| Total | 88 | 1 | 139 | 7 | 34 | 269 |

Table II gives the age, sex and race of the patients and Table III the Parishes whence these patients came.

TABLE II

| | White | | Colored | | |
|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Total |
| Under 1 year | 0 | 0 | 0 | 0 | 0 |
| 1- 2 years | 2 | 5 | 0 | 0 | 7 |
| 3- 4 " | 14 | 9 | 2 | 0 | 25 |
| 5- 9 " | 23 | 16 | 6 | 4 | 49 |
| 10-19 " | 41 | 3 | 6 | 4 | 54 |
| 20-29 " | 15 | 12 | 2 | 3 | 32 |
| 30-39 " | 15 | 19 | 2 | 3 | 39 |
| 40-49 " | 21 | 10 | 4 | 3 | 38 |
| 50-59 " | 6 | 6 | 2 | 3 | 17 |
| 60-69 " | 4 | 3 | 0 | 0 | 7 |
| 70-79 " | 1 | 0 | 0 | 0 | 1 |
| 80 and over | 0 | 0 | 0 | 0 | 0 |
| Total | 142 | 83 | 24 | 20 | 269 |

TABLE III

| Parishes | |
|---|---|
| Acadia | 2 |
| Avoyelles | 18 |
| Jefferson | 39 |
| Jefferson Davis | 1 |
| La Fourche | 2 |
| Livingston | 3 |
| Orleans | 148 |
| Rapides | 8 |
| St. Helena | 1 |
| St. James | 1 |
| St. Landry | 8 |
| St. Tammany | 5 |
| Tangipahoa | 25 |
| Vermillion | 2 |
| West Baton Rouge | 2 |
| West Carroll | 4 |
| Total | 269 |

Table IV gives the number of days elapsing between the time of injury or exposure and the beginning of treatment, when such information could be obtained.

TABLE IV

| Days | Patients |
|---|---|
| Same | 11 |
| 1 | 99 |
| 2 | 27 |
| 3 | 27 |
| 4 | 35 |
| 5 | 21 |
| 6 | 12 |
| 7 | 8 |
| 8 | 11 |
| 9 | 2 |
| 10 | 6 |
| 12 | 1 |
| 13 | 1 |
| 14 | 4 |
| 20 | 2 |
| 60 | 1 |
| Unknown | 1 |
| Total | 269 |

Table V indicates the circumstances of the injury and the type of first aid treatment given in each case.

TABLE V

| | |
|---|---|
| Injury inflicted through clothing | 70 |
| Injury inflicted to bare skin | 199 |
| Iodine applied to site of injury | 1 |
| No local treatment | 110 |
| Phenol, cauterization and serum | 32 |
| Tetanus antitoxin only | 127 |

Table VI indicates the number of dog brains examined and their diagnoses.

TABLE VI

| | |
|---|---|
| Negative | 132 |
| Positive | 57 |
| Unsatisfactory | 13 |
| Total | 202 |

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## NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

One of the most successful forms of instructing the man who has been in practice for some years and who has not been able to keep up with all of the present day trends in medicine in its broadest implications, has been the establishment here, there and throughout the country of so-called post-graduate assemblies. These have been of inestimable value to the busy practitioner of medicine who, on account of the exigencies of time and the fulness of his day, does not have the opportunity to keep abreast of advances in medicine. Not only have the clinics and assemblies been well worth while to such men but as well to the specialist who may be more reasonably expected to keep up in his specialty, but other phases of medicine are so many that it is a physical impossibility for him to know what is being done in other lines. As a matter of fact only to the most omnivorous reader would it be possible to devour everything worth while in medical literature. These post-graduate assemblies are most catholic in their appeal to practically all members of the medical profession irrespective of their type of practice.

One of the advantages of the assemblies in a given community, is that they afford an opportunity to the physicians within a radius of 150 miles or more to attend them without serious loss of time in travel, in other words the speakers at the meeting come to their auditors rather than the listeners going long distances to hear these men. It is a most sensible arrangement.

Realizing and appreciating that New Orleans, Louisiana, southern Mississippi and Alabama and other nearby communities have not had the opportunity presented to them of attending post-graduate assemblies except those that are a considerable distance away, a public spirited committee has been organized that has already taken steps to put into effect a post-graduate week that will be held in New Orleans some time in early March, 1937. This committee has already made reasonably definite plans and has definitely organized for the future meeting. This meeting has been underwritten by a group of physicians in the city. The present plan is to have a list of distinguished clinicians from out of town, from the various important medical centers, come to New Orleans to deliver addresses and to give clinics. This latter feature is particularly to be accentuated. The store of clinical material in Charity Hospital affords an excellent opportunity for demonstration of a series of cases in which the clinician may be particularly well informed and especially interested. Since such an opportunity does not exist in practically any of the cities where these post-graduate assemblies are held, it should be a very valuable feature of the assembly. The invited guests will also contribute papers and there will be, in all probability, round table discussions at which time questions will be asked and answered. Altogether the prospects for this new venture by the Orleans Parish Medical Society seem most propitious and happy. Further notice of course will be sent to physicians in the relatively near neighborhood of New Orleans. These statements above are merely expressed in very general terms. The detailed announcement will follow but in the meantime, those who are interested should tuck away in a corner of their mind the fact that this graduate medical assembly will be held in March and will not conflict with other medical meetings. If present plans are completed a really splendid educational treat will be afforded to the doctors of this state and neighboring states.

## THE DOCTOR IN COURT

The first article in this issue of the journal is the address delivered by Mr. St. Clair Adams at the annual meeting of the State Medical Society in Lake Charles. This presentation could well be read most attentively by every subscriber to the journal who is a medical man because always there is a chance that the doctor may be called as a witness and very frequently he will have to qualify as an expert.

Mr. Adams has formulated, as he says, out of his own experience largely, a set of rules which might well be considered the last word in what the expert witness who is a medical man should do and how he should conduct himself. The author of these rules is well qualified to speak; he is a lawyer who has had a most active legal life and has had a tremendous experience in the court room. He is more particularly fitted because for some years he has been the counsel of the Louisiana State Medical Society.

Sometimes the fact is unknown to the physician that when he is called to court as a witness he need not express any opinion except as to the facts of the case in which he has been called to testify. If questions are asked which require an opinion, particularly an opinion of a hypothetical case, the physician is not obligated to answer such questions unless the lawyer is willing to have him appear as an expert. If he is simply a witness as to fact the fee is that of any witness, whereas an expert is entitled to considerably greater monetary returns. Any physician may be called as an expert; it does not necessarily imply that because a man is not a specialist that he may not be called on to deliver his expert opinion. He should be on his guard not only to see that he is recognized as an expert but also that he has in his mind Mr. Adams' rules for expert medical witnesses. If he has these at his finger tips, he will be in a position to make a most favorable impression on judge and jury and be of material assistance to justice.

## PREVENTION OF HYPERTENSION

Every practicing physician is well aware of the difficulties of controlling hypertension, regardless of its type or cause. It is quite generally assumed that in most patients whose hypertension begins at a comparatively young age and for which there is no obvious or determinable cause, that the factor of heredity plays a most important part. One of the very definite helps that a practicing physician, who comes into contact for a considerable period of years with members of the family groups which are under his care, could contribute to the general knowledge of medicine, would be the reporting of the systematic following of blood pressure in childhood, youth and early midlife, particularly in those families in whom the parents or grandparents or close collaterals have died as result of heart, kidney or cerebral disease. A considerable series of cases culled from the records of the family practitioner would add much to that information which we now lack regarding the development of so-called essential hypertension. Are the early stages of malignant hypertension antidated by a period at which time basal pressure may be normal but under the stimulus of such factors as excitement, fear, anger, wide jumps in the systolic and to a lesser extent the diastolic pressure may take place? This has been referred to by S. Marx White as the labile phase of hypertension. It is familiar to all physicians; every one knows how under the first examination when the blood pressure is taken before the patient is quieted down it may be 35-40 mm. of mercury higher than it will be after the doctor has gained the confidence of the patient.

Hypertension of the extremely labile type is the blood pressure that can be helped. When a patient develops more or less fixed high pressure about all that can be done for him or her is to hope and pray. Drugs are of little avail; rest may temporarily allay the ultimate cerebral apoplexy or cardiac failure, but in the early stages of hypertension much may be done to prolong the patient's life. It might not be too much to expect that if this patient is going to develop malignant hypertension his symptoms may be alleviated for a time, if he has any and the course of the disease may be modified. One cannot tell definitely because we do not know what is going to happen in these people.

Assuming that the patient is in the early labile phase of hypertension several measures may be advocated to avoid the high jumps in pressure which undoubtedly have their effect on the blood vessels. Change in environment of the patient, if possible, so that the stimuli producing the jumps may be reduced to a minimum; attempt to shorten periods of high pressure and to increase the periods of low. These *desidirata* may be obtained best by frank explanation to the patient of why they should be done. Explain to him in words of one syllable what may be the outcome if he permits his surroundings and environment to disturb him; indicate that hours of work should be modified, that there should be a greater amount of rest, more time should be devoted to recreation; a quiet period of complete relaxation after meals is desirable. Sleep should be long and restful. If any drugs are of value in reducing blood pressure then the sedatives lead all others by far.

It is the family physician who has the opportunity of answering many of the problems of hypertension. It is the family physician who should demand of his patients a regular and thorough physical examination every year, perhaps not to find immediate disease but at least to be a record and a time signal in the event of developments of future trouble.

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# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

## SHREVEPORT MEDICAL SOCIETY

The regular meeting of the Shreveport Medical Society was called to order on June 2, 1936, by the president with 33 members and 2 guests present. The minutes of the previous meeting were read and adopted. The minutes of the recent Executive Committee meeting were read and accepted by the Society.

Committee Reports: The Committees on the applications of Drs. D. B. Daniel and N. J. Bender reported favorably upon their applications for membership in the Shreveport Medical Society.

Dr. Lucas, Chairman of the Social Affairs Committee, stated that tentative plans called for some type of social gathering the first Tuesday in August.

Scientific Program: Dr. Paul W. Winder presented an interesting and instructive talk on "Common Lesions of the Cervix," discussing laceration, erosion, eversion and carcinoma of the cervix. He pointed out that the dangers of cervical disease are threefold: first, as a source of focal infection; second, it is productive of local symptoms, including dystocia and sterility, and third, as a source of cancer. Dr. Winder's paper was discussed by Drs. Alverson, Edwards, Blandino and Sanders.

A film on "Egotocin" was then shown.

Unfinished Business: The regular order of business was suspended and Drs. Bender and Daniel were elected to membership by open ballot and the oaths administered by the president.

Dr. Webb made a motion that the Maternal and Infant Mortality Committee be authorized to establish a prenatal and postnatal clinic for indigent mothers under the control of the Society. This motion was duly seconded and carried.

New Business: Resolution of regret on the death of Dr. Furman was adopted by the Society.

Dr. Tooke pointed out that there were several bills of interest to the Medical Society pending before the State Legislature and Dr. Alverson made a motion that the Public Health and Legislation Committee be instructed to arrange for a representative of the Society to investigate these bills and to cooperate with the State Society in the interest of organized medicine. If necessary, this representative should go to Baton Rouge at the expense of the Society. This motion was duly seconded and carried.

Paul D. Abramson, M. D., Sec.

## THE SHREVEPORT EYE, EAR, NOSE AND THROAT SOCIETY

The Shreveport Eye, Ear, Nose and Throat Society met in regular session at the Charity Hospital, the evening of Monday, May 4, 1936, at 7:30 o'clock. The President, Dr. L. W. Gorton presided. The following members were present: Drs. Gorton, Crebbin, LaRue, I. Henry Smith, and Wilkinson, of Shreveport.

In the absence of Dr. Boaz, a patient of his was presented by Dr. Wilkinson. He gave a history of failing vision in the right eye, beginning about 18 months ago, and at the present time perceives only light and large objects. Examination of the fundus revealed haziness of the disc on the nasal side, while the temporal portion was clear and distinctly outlined. The arteries were small and pale throughout the fundus, while the veins were black, slightly dilated and irregular in outline. There were no hemorrhagic or atrophic areas. All present agreed that this was a very unusual case and the concensus of opinion was that most likely there had been a very mild optic neuritis accompanied by circulatory disturbance. As the patient was negative for luetic or focal infections, the idea was advanced by Dr. LaRue that the only hope for improvement was a sphenoidectomy. The above treatment was advised in spite of the fact that the x-ray report was negative for sphenoid involvement.

Dr. Gorton reported a case of a colored man who had swallowed a fish bone and on whom he had done an esophagoscopy. He did not find the bone, but noticed during the operation a laceration of the esophageal wall. The patient apparently was in good condition and left the hospital the following day. Shortly thereafter, he had a severe hemorrhage and died before medical aid could be had. Dr. Gorton showed a specimen taken at postmortem in which there was a perforation of the esophagus, leading into an abscess, which in turn had eroded into the aorta, causing a direct communication between the arch of the aorta and esophagus. He was positive that no injury had been done at the time of operation and the position of perforation was such as to make it practically impossible for it to have been instrumental in origin. This case was of unusual interest, though no definite explanation of the perforation was advanced.

J. A. Wilkinson, M. D., Sec.

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## THE SHREVEPORT EYE, EAR, NOSE AND THROAT SOCIETY

The Shreveport Eye, Ear, Nose and Throat Society met in regular session at the Charity Hospital, the evening of Monday, June 1, 1936, at 7:30 o'clock. The president, Dr. L. W. Gorton presided. The following members were present: Dr. A. H. Mann of Texarkana, Ark.; Capt. Corliss of Barksdale Field; and Drs. Boaz, LaRue, Crebbin, Gorton, and Wilkinson, of Shreveport

Dr. Boaz presented three interesting eye cases:

1. A subluxation of the lens following an attempt at cataract extraction last October. Due to the fact that the patient is totally blind in the other eye, he has been permitted to retain this practically useless eye. It is in a quiescent state at present and the patient has good light perception.

2. Dr. Boaz's second case was an ulcer of the cornea, due to malaria. It has responded nicely to treatment of the local lesion along with antimalarial therapy.

3. The third case Dr. Boaz presented was total blindness of the right eye following an injury. There was slight opacity of the lens and detachment of the retina. Since the patient has been blind, he has developed an external strabismus.

Dr. Gorton showed an x-ray picture taken of a child's chest in which there was a six-penny nail lodged in the trachea. He also exhibited the nail which he had removed, the child making an uneventful recovery.

The meeting was adjourned until the first Monday in October.

J. A. Wilkinson, M. D., Sec.

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## TRI-STATE HOSPITAL STAFF

After dinner in the Hospital dining room, the Staff was called to order on May 28, 1936, by Dr. C. R. Gowen, acting Chairman. The routine busibusiness was disposed of in the usual manner.

The Scientific Program consisted of the presentation and discussion of the following case by Dr. W. S. Kerlin. A white male, aged 36 years, was admitted March 4, 1936, four days after the onset of lobar pneumonia. He was very toxic and delirious at the time of admission. Blood culture, after 16 hours' incubation, showed luxuriant growth of Type I pneumococcus. He appeared desperately ill the following day, his sixth day of illness. Twenty thousand units of Type I Feltens antipneumococcic serum was administered by vein on the sixth day of illness. He had no reaction and the same amount was repeated at four hour intervals until 80,000 units were given. The next morning his temperature was normal, and the patient felt considerably better. Negative blood culture thirty-six hours after serum injection, negative control culture two days later. He developed empyema of the left chest and this was drained by thoracotomy ten days later. Temperature subsided and the patient was permitted to leave the Hospial five weeks after admission. His heart was well compensated at the time of discharge; no audible murmurs, and sounds were clear, rhythm regular. The patient returned every few days for dressing and was making fairly satisfactory progress. However, four weeks after discharge from the Hospital he had a recurrence of fever, followed by chill. Examination of the chest was negative. Skiagraph of chest revealed good illumination of both lung fields; heart apparently normal. The fever continued and the patient was readmitted to the Hospital a few days later. Examination of the heart revealed loud systolic and diastolic murmurs heard over both base and apex of the heart, no apparent hypertrophy. Blood pressure was 110/20. A loud pistol-shot sound was heard over the femoral, brachial and radial vessels. Blood culture revealed luxuriant growth of Type I pneumococcus, no demonstrable embolic phenomena. Acute pneumococcie endocarditis was evident and a fatal termination was anticipated within a few weeks' time. However, the patient expired very suddenly two days after readmission, probably from a cerebral embolus.

Following a discussion of the statistical and mortality reports for the preceding month, the meeting adjourned.

D. B. Daniel, M. D., Sec.

## NORTH LOUISIANA SANITARIUM STAFF MEETING

The North Louisiana Sanitarium Staff meeting was called to order on May 26, 1936, by the President with 18 regular members present. After the disposal of routine business attention was turned to the scientific program.

Dr. Herold gave a short discussion on influenza, calling attention to the similarity of the disease in the present epidemic to that of the 1918 epidemic. Dr. Herold advised the use of convalescent serum because of its value in the treatment of "flu" and pneumonia. Dr. Webb then presented a paper on influenza in children, calling attention to the difficulty in diagnosis. He also stated that over 50 per cent of the children who have upper respiratory infection will have some degree of middle ear infection and cervical adenitis. The papers were discussed by Dr. Rigby, who called attention to the cyclical occurrence of "flu" and suggested that the speed of spread is proportionate to the speed of travel.

Harry M. Trifon, M. D., Sec.

## SCHUMPERT STANITARIUM

After an excellent dinner in the hospital dining room, the Staff meeting was called to order on May 12, 1936, by Dr. C. H. Webb, presiding in the absence of Dr. Garrett.

Roll call showed 17 members and 3 visitors present. The visitors were introduced to the staff.

Scientific Program: Dr. J. B. Birdwell introduced Dr. T. J. Bush, who discussed "Diverticula of the Colon". He pointed out the particular prevalence of diverticula in the sigmoid area, and discussed the danger of carcinoma as a sequel to diverticula.

The discussion was opened by Dr. Boyce who compared the symptoms and treatment of this condition with appendicitis. Further discussion was continued by Dr. George Garrett.

Discussion of deaths ensued, with presentation of the case histories of two adults with fatal pneumonia, and of two accident cases.

Dr. George Garrett reported that Dr. B. C. Garrett is steadily improving in health.

C. H. Webb, M. D., Sec.-Treas.

## MERCY HOSPITAL

The regular monthly meeting of the Mercy Hospital Staff was called to order on Wednesday, June 3, 1936, with Dr. Geo. Hauser presiding.

This was one of the most interesting meetings of the year, having as its scientific program a Symposium on Appendicitis. It was made especially interesting by the excellent presentations of various members of the staff. Dr. Phil de Verges discussed the pediatric aspect; Dr. M. M. Green, genito-urinary aspect, Dr. Zander, appendicitis in pregnancy; Dr. Lloyd Hanckes, the surgical aspect; and Dr. George Hauser, the pathologic aspect.

Lloyd Hanckes, M. D., Sec.

## HOTEL DIEU

The regular monthly meeting of the Staff of Hotel Dieu was held on Monday, May 18, 1936 at 8:00 p. m. in the Nurses' Lecture Room of Hotel Dieu.

The meeting was called to order by the President, Dr. E. H. Walet, and with the Secretary, Dr. J. A. LaNasa, at the desk.

The Scientific Program consisted of:

a. Gynecological Phase of Tuberculosis, Dr. L. LeDoux. Discussed by Drs. Salatich and Dimitry.
b. Carcinoma of the Prostate (Case Report), Dr. Max M. Green. Discussed by Drs. Kahle and Chalaron.
c. Fractures of the Forearm with Motion Picture Demonstration, Dr. H. Theodore Simon.

A recess of one minute was ordered by the Chairman, after which the meeting resolved into Executive Session.

## J. T. NIX CLINIC

New Orleans

At a meeting held in June, Doctor J. A. Gaudet read the following paper:

### THE FORMED ELEMENTS OF THE BLOOD

Apparent—even to the quid nunc scrutiny of the inquisitive as with the shuttered eye of the uninitiated, he views the stained blood smear through the immersion lens of the microscope—is the fact that the formed elements of the blood are typically two: grossly globular and homogeneous non-nucleated red corpuscles (erythrocytes), and large and differentially staining nucleated white corpuscles (leukocytes)—in the average proportion of 800 to 1 (1600-410 to 1).

The erythrocytes, correctly concave or concavo-convex discs of a 6.7-81 microns in diameter, having an outer skin or stroma of lipiods around a framework of lipoids and hemoglobin, are commonly stated to total 4,500,000 cells per cu. mm. in women and an even 5,000,000 in men. The latest compilations furnish broader normals,[2] a minimum of 4,100,000 and a maximum of 6,400,000; thus presenting a health variance of over 2,000,000 cells per cu. mm. A variation of 500,000 cells in eight hours has been noted in the same individual—factors such as the time of the day when taken, humidity, temperature, altitude, sex, age, and vasomotor status, are understood to be determinants of this variance.

Table A contains the results of a survey of 1000 erythrocyte totals from our records; in each case the hemoglobin was not less than 70 per cent (Tallquist):

Erythrocytes—Table A

| Sex | Number of Cases | Number of Cells | Average | Maximum | Minimum | Variance |
|---|---|---|---|---|---|---|
| Male | ..340 | 1,748,880,600 | 5,143,764 | 6,890,000 | 4,100,000 | 2,700,000 |
| Fmle | 660 | 3,303,970,000 | 5,006,001 | 6,430,000 | 4,000,000 | 2,430,000 |
| | 1,000 | 5,052,850,000 | 5,052,850 | | | |

Polycythemias (increased red cell counts)[4] are usually relative and due to the concentration of the cellular elements following fluid loss, but counts of 12,000,000 have been seen in disease (the absolute polycythemia of Osler-Vaquez disease). Oligocythemias (decreased red cell counts) approximate hemoglobin percentages. The lowest count recorded is that of 100,000 (Osler's moribund case of pernicious anemia.)

The erythrocytes arise, intravascularly, from the intersinusoidal endothelial cells of the bone marrow capillaries,—in health, before the fifteenth year of age, from the marrow of all bones and afterwards from the flat, spongy thoracic bones and femoral and humeral heads. In pathologic conditions, when the demands for them are unusual, the sites of erythropoiesis extend distally to include the bone marrow of the extremities.

At the locus of formation of erythrocytes, those of the school of monphyletists[5] pronounce the versatile myeloblast the first link of the adult pronormoblast-normoblast chain, terminating in the circulatory red cell. Others, the polyphyletists, the dualists and those of modified opinions, postulate mechanisms of erythropoiesis alike in their consideration of the embryonic mesenchymal cell as the parent cell of all blood cells but contentious over the question of the existence in postnatal life of a polyvalent cell endowed with all development possibilities. Nearing the end of the normoblast stage, the nucleus of the pre-erythrocyte becomes pyknotic and finally, in whole or in parts, is expelled (extrusion), so that when the mature erythrocytes are routed to their new circulatory habitat, as they now are, they are end products devoid of nuclei and the powers of locomotion and reproduction. They are, in actuality, dying cells doomed to a "willy-nilly" existence as oxygen bearers to the tissues, of a thirty day to several months period, when they pass from the circulation, being engulfed by the reticulo-endothelial cells of the bone marrow, lymph nodes, liver and the spleen. Their hemoglobin is liberated to form bile (bilirubin).

After several years of toilsome persistence with stained blood fields the microscopist, now no longer an amateur, can recollect and refashion the marvels of erythrocyte anomalousness he has seen. Unimaginable aberrations of their size and shape —oval and pessary forms, anisocytosis and poikilocytosis; colorful oddities of their tinctorial characteristics—polychromatophilia, granular degenerations, hypochromia and reticulocytosis; multi-derangements of normal allocations—erythroblasts and reticulocytes; all pass before him in vivid array and he correlates them with diseased states.

In our vicinity it is customary to consider the average total white cell range as being within 5-8,000 cells per cu. mm. Generally, limits are broader and between 4,000 and 10,000 cells per cu. mm. is accepted; thus there is a health variance of 6,000 cells. In 1925 Sabin and her co-workers[6] concluded: "There is a characteristic rhythm of the total white cells with an interval of approximately an hour's duration; the total number of cells varies in the proportion of 1 to 2", and now it is thought that the individual has a range of circulating leukocytes, "the maximum of which never exceeds twice the minimum".[7]

Table B contains the results of a survey of 1,000 leukocyte totals from our records:

Leukocytes—Table B

| Sex | Number of Cases | Number of Cells | Average | Maximum | Minimum | Variance |
|---|---|---|---|---|---|---|
| Male | ...............377 | 2,789,150 | 7,420 | 10,000 | 4,500 | 5,500 |
| Female | .........623 | 4,033,100 | 6,473 | 10,000 | 4,250 | 5,750 |
| | 1,000 | 6,822,150 | 6,822 | | | |

The majority of these counts were taken between the hours of 2 to 4 p. m., the period of occurrence of the highest leukocyte normals, so that ours approach the peak average.

Environmental and physiological conditions influence the count. After muscular activity is elevated, and in late pregnancy and the early puerperium counts of 15-20,000 have been noted. During the first week of life 15-25,000 cells have been counted; gradually the adult range is attained around the fifth year of life.

Shortly after the tyro microscopist notes the dissimilarity between erythrocytes and leukocytes, he discerns the feature that, though the red globules are grossly alike, distinguishing lineaments are exhibited by the nucleated white cells. Some present a complexity of cytoplasmic granulation (granulocytes) and a multiformity of nuclear morphology; others exhibit a homogeneous cytoplasm (non-granulocytes) and a large and simple nucleus. In normal adult blood the proportion of granular or non-granular cells is 3.5-2 to 1, and that of the child it is near to 1 to 1-1.5. From the second week of life to the fifth year the non-granulocytes dominate (40-70 per cent) the blood smear, but in infancy the granulocytes predominate (70-80 per cent) until the second week of life.

The granular leukocytes align to a classification based on the characteristic of their intercellular granules into neutrophiles, eosinophiles, and basophiles and, as to their morphology, into myelocytes—normally confined to their formative sites; metamyelocytes—older myelocytes having a normal circulatory incidence of 0 to 1-2 per cent; band or staff cells— more mature metamyelocytes, normally occurring in the circulation in percentages of 5-7 per cent; and segmented cells—mature polymorphonuclear (PMN) and polynuclear cells of 61-75 per cent occurrence in the circulation. These cells form the basis of the "Schilling count" and kindred "shift to the left" phenomenon which are expressions of the virulent demands of an invader on the granulocyte forming areas. Typically, the non-granular leukocytes are the lymphocytes which may be divided into large and small subtypes; however this is ordinarily superfluous. Not positively classifiable into either class are the monocytes or large hyaline leukocytes which usually represent 1-8 per cent of the "haemogram".

Unlike the fairly static and constant erythrocytes, the leukocytes are reactive in degrees, almost "ad infinitum", fluctuating with the type and violence of infection, the tissue involved, the structural arrangement of the infected part and the host reaction. The hyperleukocytic response is nature's first line of defense; since, primarily, the induced cells rush to the scenes of invasion, wall off and offer temporary resistence until a more potent second defense (immunity) can form and develop, when they subsist even before the victory is complete. Continued hyperleukocytosis indicates progress of the invasion, and infrequently the affront is apparently so drastic as to overwhelm the formative tissues (agranulocytosis) to non-response.

Any one of the leukocytes may be marshalled in an increase of the white cells but the neutrophilic granulocyte (the neutrophile) is usually the sympathetic cell. Cocci infections are largely provocative,—the pneumococci producing probably the highest PMN response, the bacillary infections of themselves are impotent as a rule. Chronic infections and diseases of the lymphatics call forth lymphocytes and diseases of the reticulo-endothelium recruit monocytes. Non-infectious diseases also evoke a hyperleukocytosis.

The granular cells arise from the extravascular bone marrow areas, besides large, mainly marginal capillaries, whence their reference as myeloid cells. These leukopoietic areas are distinct from the erythropoietic areas, although the products of either are derivatives of a common cell, the embryonic mesenchymal cell, which is the progenitor of all blood cells destined in extra-embryonic life to differentiate according to their environment and produce cells of their type. Whether a daughter cell with multipotent endowments exists in the adult is a mooted question; however, the concensus agrees that the slightly granular myeloblast is the primary cell of the myeloid series and that the tinctorially and morphologically variable myelocyte follows. Prior to migration to the circulation (penetration of the capillary walls) with ameboid motion of their own, they develop into lobed polymorphonuclears. Lymphocytes issue forth from foci of lymphoblasts in lymph glands and other tissues scattered throughout the body. The monophyletics hold the lymphoblast and the myeloblast to be the same cell, but the polyphyletics do not adhere to this doctrine[8] contending that the two cells are distinct and that each has a fixed myeloid or lymphoid potentiality.[9] When we consider their particular arrangement and analysis, their separate embryological histories and their individual responses to pathological and physiological stimuli, we cannot but join the polyphyletics in their appraisal of the lymphoblast as an entity. Azurophilic granules can sometimes be detected in a sparse distribution in their cytoplasm; however, this is not to be thought of as a true granulation but simply as a deposition, such as occurs around a nodal point, or as a residual of a protoplasmic secretion which has resulted from a previous toxic state.

Intermediate in granulation and larger and fewer than the polymorphonuclear leukocytes are the large hyaline leukocytes or monocytes with faintly basophilic cytoplasm variously speckled with azure granules and having a large, round, nucleolated nucleus. The origin of these mononucleated mystery cells is vague in a sense. Of course, like all blood cells, they ultimately trace to the embryonic mesenchymal cell, but in adult life it is uncertain whether they spring directly from the reticulo-endothelium or require the interposition of the myeloblast or lymphoblast. They are Metchinikoff's macrophages.

The leukocytes are end products; reproduction never occurs in the circulation but maturation and growth proceed there. There is no information available as to the length of life of the white cells or what their unmolested end is. The neutrophiles are actively motile; they engulf and digest bacteria and foreign bodies and probably function as disseminators of tissue nutrition. Some monocytes are active phagocytes and others mere quiescent masses, and they increase when bacteria and insoluble particles are injected into the body. The lymphocytes "ooze" slowly through the tissues with an amoeboid movement, but when "supravitally" stained, they are motionless; they have never been acclaimed as phagocytes, and they have no recognized usefulness other than a probable aid to intestinal absorption, the production of antibodies and the fixation of toxine.

A third formed element, the blood platelets or thrombocytes are not so evident as the two first. They are sticky, fragile bodies, having no nucleus and being about one-fifth to one-half the diameter of an erythrocyte in size. Using a direct technic, they enumerate 200,000 to 400,000 per cu. mm. of blood; with a more refined method, they range from 300,000 to 800,000 and during menstruation exceed 1,000,000. They have a very definite association with blood clotting, and, according to the well known doctrine of Wright, they arise from the megakaryocyte of the bone marrow.

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## OSCAR ALLEN TUMOR CLINIC CHARITY HOSPITAL NEW ORLEANS

The Scientific Meeting of June was called by Dr. James T. Nix, Director. The essayist was Dr. John Connell who presented the following paper.

### CARCINOMA OF THE PENIS

Cancer of the penis takes a formidable position in onconology. It is the site of from two to three per cent[1] of all cancers observed in the male race. McCarthy[2] ranks it fourth in the frequency of skin carcinomas. Only the lip, nose and ear are given precedent. The incidence along with other malignant lesions appears definitely on the increase.

That the foregoing should be true in the future will rest almost entirely upon the medical profession's ability to assimilate already ascertained facts. Of all the malignancies of the body those of the penis are the most readily prevented and detectable. Phimosis and syphilis are the only two etiological factors of any significance.

Cancer of the penis in races where ritualistic circumcision is performed in infancy is unknown. There is only one exception to this, the case reported by Wolbarst[3], in one of the Semitic race, but he however had not been so treated. This case illustrated what is not a racial immunity but probably a surgical one. That an elongated foreskin associated with poor hygiene should be a direct etiologic agent in not surprising when we consider the true factors concerned.

In the urine we find indol, skatol, indigo, lipolytic and proteolytic ferments. This along with the fatty material secreted by Tyson's gland constitutes the smega which may be ever present under a tight prepuce. These elements become significant when we realize that experimentally indol, skatol and indigo are used in the production of skin cancer. Further, that the ferments acting on the fats present cause rancidity which must irritate and stimulate epithelial growth.

Syphilis as a direct cause is of minor significance because not more than five per cent have this disease as a background. There are however many cases as Moulson's[4] which are rather definitely proved to have arisen directly from the primary lesion, the latter never having healed.

In the Charity Hospital of New Orleans in the past three years there have been twenty-one carcinomas of the penis. The accompanying chart shows average ages, color and number according to their histologic variations:

| Grade | No. | Age | Colored | White |
|---|---|---|---|---|
| I | 9 | 59 | 6 | 3 |
| II | 7 | 56 | 4 | 3 |
| III | 5 | 39 | 5 | ---- |
| IV | 0 | ---- | ---- | ---- |
| Totals | 21 | 53 | 15 | 6 |

These figures though deplorably small give us interesting material for consideration.

The race incidence we have already mentioned in so far as Jews and Mohammedans are relatively free of the disease. According to published statistics the Chinese appear to be the most affected. In the United States many reports including Dean's (93 per pent)[5] would lead one to suppose that this lesion was predominant in the white race. In this institution where the proportion of colored and whites is about equal we see a great preponderance, 71 per cent in the colored race where both hygiene and syphilitic infection probably play a major role in an uncircumcised individual.

Th age period usually given is between 50 and

70 years although cases as young as 18 years have been reported.6 The cases in this hospital have grouped themselves in the main toward the sixtieth year. One case however, was 31 and another 32, both of which appeared in a group which appears very significant.

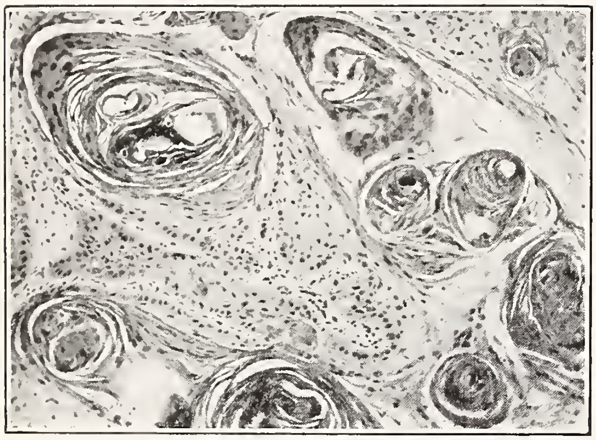

FIG. I.—Eosin-hematoxylin. Grade I squamous cell carcinoma showing large pearls indicative of a low grade malignancy.

From the pathologic standpoint we have several varieties: grossly, they are usually divided into two groups; the papillary and the flat. The papillary tumors which are usually the ones appearing in the older individuals may have an indurated base in their later stages, but the flat types are characterized by induration at all times. In the present series 62 per cent were of the papillary variety. The flat variety begins as superficial ulcerations and those with a luetic background are always of this variety. They show a superficial spread and a deep infiltration, the extent of which is dependent upon the duration of the disease. The papillary tumors appear first as a wart and grow by a coalition with other warts or by proliferative action.

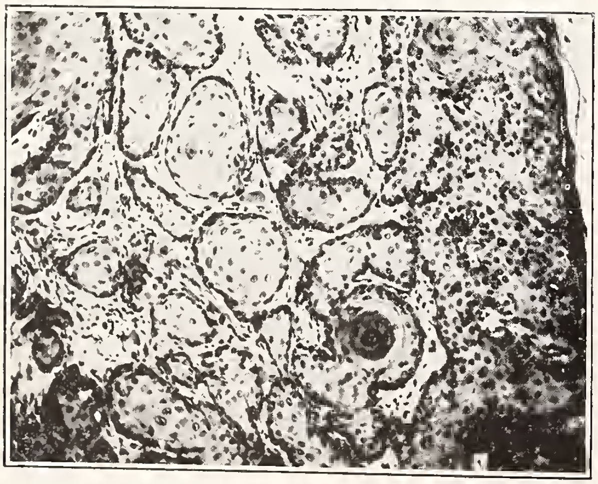

FIG. II.—Eosin-hematoxylin. Grade II squamous cell carcinoma. Only a few scattered pearls which are small. The epithelial cells show their advanced malignancy by dedifferentiation.

Histologically, all the tumors were of the squamous cell variety and (after Broder) are arbitrarily divided into four grades. Agreeing with other larger statistics most of the cases in the present group were of the lower grades of malignancy; namely, Grades I and II. The very interesting finding however, was the definite evidence that the advanced grades of malignancy were associated with youth. The age for the group III tumors was twenty years below that for the grade I variety. There were none of the highly anaplastic type IV tumors. Examples of the grades alluded to are shown in the accompanying photographs.

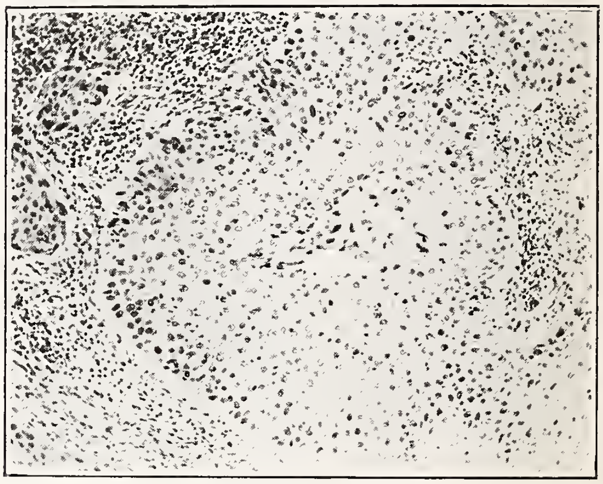

FIG. III.—Eosin-hematoxylin. Grade III squamous cell carcinoma. Complete absence of pearls, hyperchromatic nuclear elements plus numerous mitotic figures.

The prognostic value of the grading of these tumors and their therapeutic management is beyond the scope of the present thesis and will be the subject of a subsequent paper.

## SUMMARY

Carcinoma of the penis is a common cancer of the skin that can be prevented by proper prophylactic means instituted by the physician, mainly circumcision and early recognition. Primary lesions of syphilis which do not heal as readily as expected should be investigated as to the possibility of malignant changes. Racial characteristics seem to play little part in the incidence aside from the associated religious ceremonies. The disease is primarily one of the aged but when occurring in younger individuals is prone to be a more active type of growth.

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2. McCarthy, L.: Histopathology of Skin Diseases, 1931, p. 369.

3. Wolbarst. A. L.: Cancer. 3:301, 1926.

4. Moulson, G.: Serum therapy in cases of acute spinal meningitis, J. Roy. Arm. Med. Corps., 65:328, 1935.

5. Dean, J.: Epithelioma of penis, Urology, 33:252, 1935.
6. Curtis, See reference 1.

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## HUTCHINSON MEMORIAL CLINIC

*Symposium on Splenomegaly*: Conducted by the Department of Medicine, Dr. W. H. Gillentine, Chairman.

Dr. Musser (Department of Medicine): I am presenting to you a classification of the chief causes of enlargement of the spleen:

I. Acute Bacterial Infections
    a. Typhoid fever.
    b. Undulant fever.
    c. Tularemia.
    d. Subacute bacterial endocarditis.
    e. Tuberculosis.
    f. Abscess.
    g. Septicemia.
    h. Other infectious diseases.
II. Acute Animal Parasitic Disorders
    a. Malaria
    b. Syphilis.
    c. Uncinariasis.
    d. Kala-azar (the leishmaniases).
III. Chronic Infections
    a. Tuberculosis.
    b. Malaria.
    c. Syphilis.
    d. Subacute bacterial endocarditis.
    e. Amyloid disease.
IV. Mechanical
    a. Portal obstruction.
        1. Chronic heart disease.
        2. Chronic lung disease.
        3. Cirrhosis of the liver.
    b. Polycythemia.
        1. Erythemia.
        2. Congenital heart disease.
    c. Torsion of splenic pedicle.
    d. Thrombosis of splenic vein.
V. Blood Diseases
    a. Associated with anemia.
        1. Pernicious anemia.
        2. Splenic (Banti's disease).
        3. Hypochromic anemia.
        4. Sickle cell anemia.
        5. Hodgkin's disease.
    b. Associated with leukocytosis.
        1. Chronic leukemia.
        2. Acute leukemia.
    c. Associated with increased fragility of red cells.
        1. Chronic hemolytic jaundice.
    d. Associated with platelet reduction.
        1. Thrombocytopenic purpura.
VI. Disorders of Reticulo-Endothelial System
    a. Gaucher's disease.
    b. Nieman-Pick's disease.
    c. Reticulo-endotheliosis.
VII. Deficiency Diseases
    a. Rickets.
VIII. Cysts
    a. Simple.
    b. Parasitic.
    c. Neoplastic.
IX. Neoplasia
    a. Sarcoma.
    b. Angioma.
    c. Secondary metastasis.

In some of these conditions the enlargement of the spleen is occasional only. Thus for example, in sickle cell anemia splenic enlargement is found only in the child, whereas the spleen shrinks to almost nothing in the adult. In tuberculosis it is rather exceptional to have the spleen enlarged unless this organ is involved in a generalized process, that is, tuberculosis of the spleen. Neoplasia of course refers to primary disease of the spleen and not to neoplasia elsewhere in the body.

The most important point to dwell upon is that there is a variety of conditions in which the spleen is enlarged, many of them readily diagnosed. In certain instances the occurrence of splenomegaly may be the link which ultimately completes the diagnosis.

Dr. Ané (Department of Radiology): With regard to the diagnosis of splenomegaly I think we are all familiar with the work that has been done with thoratrast. Until the time that we can find some form of opaque substance which will not be radio-active we have to depend more or less upon our soft tissue shadows for diagnosis of splenomegaly. In regard to radiation therapy practically all types of splenomegaly will become reduced. Our greatest effect, however, is in chronic myelogenous leukemia. The entire treatment may be directed to treatment over the splenic area, short bones and long bones. Care should be taken thoroughly to check blood counts. Recently, quite a bit of work has been done on the value of the basal metabolic rate as an indication for further irradiation therapy and recent work by Pohle, Meyer and Middleton has shown that the basal metabolic rate is not as valuable as blood counts and particularly the myelocyte count. It is necessary to individualize in practically every case. Some cases will show a marked reduction in count; others will have to be treated repeatedly. There is quite a difference in reaction in different individuals treated. The spleen may be treated in one case and a great deal of benefit obtained and in other cases there will be no reduction until the long bones and sometimes even the short bones are treated. You never know exactly just what type of reaction you will get until you have had an opportunity at irradiation therapy. The usual method is to use as small a dose as possible with frequent check-ups on the blood count, including the differential count. Radium was used in about

1922 for splenomegaly associated with malaria. European clinics reported remarkable results but these results were not duplicated in this country. At that time Dr. Menville and Dr. C. C. Bass used radium on cultures of malaria There was no destruction of parasites. Dr. Sante reported in quite a large series of cases demonstrating that in those cases in which you are unable to demonstrate the plasmodia, after irradiation therapy smears loaded with organisms may be found. Irradiation therapy has been used to obtain a positive smear. In regard to Hodgkin's disease the Hodgkin's and lymphosarcomas are grouped more or less as lymphoblatomas. Irradiation therapy has also been used in Gaucher's disease with questionable results. In Hodgkin's disease there is a marked reduction which is followed by enlargement of the spleen to its usual size, so you have to keep up irradiation for a considerable length of time.

Dr. Sodeman (Department of Medicine): A 35 year old negro was admitted March 21, 1936, with a chief complaint of weakness and backache, first noted one year ago. By October, 1935, weakness was so pronounced that it interfered with his work. Past history revealed a specific urethritis at 19, a penile lesion at 26. His wife had had three miscarriages. Physical examination showed him to be slightly under-nourished; mucous membranes were pale. There was an area of tenderness over the sternum at the level of the fourth costal cartilage. The liver could not be palpated. A mass extending 6 cm. to right of the umbilicus and half way from the umbilicus to the symphysis pubis was felt in the left upper quadrant. The examination was otherwise essentially negative. Laboratory examination showed a strongly positive Wassermann, hemoglobin 23 per cent and red blood cells, 2,245,000. The most remarkable finding was 440,000 white blood cells, of which about 40 per cent were young and abnormal cells. His basal metabolic rate was 50 per cent; blood sugar 88; n.p.n. 44-39; uric acid 3.7. From the clinical findings and from the blood findings a diagnosis of myelogenous leukemia was easily made.

There are two methods of treatment for myelogenous leukemia; one medical and the other radiologic. At one time benzol was quite commonly used. Arsenic was also used, and lately there has been an increased interest in its use, but irradiation is the best form of treatment, and we sent him to Drs. Ané and Menville. He started with a white count of 440,000 and was treated at least a month. At that time his count was 60,000. Today his white count was 13,750. He had, as I said, an anemia, which may be, in leukemia, one of four or five different types. It may be due to a toxic state; may be on a nutritional basis; may be an anemia of bleeding or the so-called myelophthisic type of anemia, due to crowding out of the red marrow. In the latter type nucleated red cells, polychromatophilia and other young forms appear in the peripheral blood. He had these findings at the first examination and we expect because of those findings that possibly this anemia would improve with treatment. His red count was 2,225,000; today it was 4,440,000. The history of a penile lesion itself was rather important. This is one of those diseases in which it is said you may get a positive Wassermann without the presence of the spirochete, but because of the wife's miscarriages, and the history of a penile lesion, besides the positive Wassermannn, I believe he has lues. However, since x-ray treatment, his Wassermann reaction has changed from strongly positive to slightly positive. Because of a great destruction of nuclear material these patients excrete much uric acid. This accounts for the high blood values. We tried to get a series of basal metabolic determinations on him but he very seldom showed up. He was given five appointments and only kept two. His basal metabolic rate is now about plus 1 per cent.

Differential diagnosis of myelogenous leukemia may be difficult. If the total white count is reduced it may be confused with agranulocytic angina. There is one condition, polycythemia, in which there may be an increase in all elements of the blood, red cells, white cells and platelets. Young white cells, myelocytes, may appear in the peripheral blood. If the white cells reach high levels, 30,000 or more, confusion with leukemia may occur. Then if, as happened in one of our cases, anemia develops, the diagnosis may be most confusing. The platelet count may be helpful in differentiation, for in polycythemia it may reach three million.

Dr. Gillentine (Department of Medicine): Miss A. K.: Two years before admission in October, 1934, the patient was told by her physician that she had an enlarged spleen. One year before admission a pterygium was removed from the right eye. The patient's mother died with cirrhosis of the liver with ascites and jaundice just before death. She has two brothers; one died shortly after birth and one is sickly and has an enlarged spleen. A sister is living and well.

There was a yellow, wedge-shaped pinguecula in the left eye with the base of the triangle toward the cornea. The spleen was enlarged three fingers below the left costal margin. The patient received roentgen ray and radium over the spleen in Hotel Dieu in February, 1935. The spleen was enlarged 13 cm. below the left costal margin and the liver 5 cm. below the right. An electrocardiogram showed some myocardial diseases. No cause was found for these changes. Blood studies were negative. The patient's brother came into the Clinic on January 18, 1935. He gave a history of occasionally bleeding from the gums and excessive bleeding from hemorrhoids which were not particularly marked. When he was examined, pigmented areas of the hands, neck and face were found. He had pingueculae in both eyes. Palpable anterior cervical glands were found; the spleen was palpable 6 cm. below the umbilicus and was firm. Roentgen rays of the femora showed changes which are characteristic of Gaucher's disease. Blood studies revealed a marked leukopenia (750 white cells). The red count was 4,500,000 red blood cells per cu. mm. The platelet count was about 150,000. The bleeding time was 11 minutes; coagulation time 3 minutes. Reticulocyte count was 1.5 per cent. We made a diagnosis of Gaucher's disease in both of these individuals on the basis of the familial disease, the occurrence of the wedge-shaped pingueculae in the eyes, the spotted pigmentation of the skin in one of them, the enlargement of the spleen, thrombocytopenia, leukopenia, and the absence of jaundice and ascites, and on the basis of the coarse, granular, worm-eaten appearance of the cortex of the femora without destruction of the cartilage and without destruction of the periosteum, in one of the patients. The diagnosis may be confirmed by splenic puncture showing the typical Gaucher's cells containing kerasin suspended in the cytoplasm by a fine reticular network that gives the cell a foam-like structure, hence the name foam cells.

Dr. Clement Jones (Department of Medicine): This patient is 63 year of age. Her mother is said to have had attacks of jaundice for which there never was any explanation. The patient's complaint started at 13 and consisted of attacks during which she would have severe pain over the splenic area and general weakness. She remembers the physician stating that she had some "spleen trouble". At irregular intervals the splenic pain would return and at times the jaundice. There must have been two or three attacks between 13 and 19. During a period of six years she had but one attack of jaundice. From the time she was 25 up until a year before she came in here in 1932, she had three attacks of weakness, jaundice and dyspnea. Her history immediately on admission to the Clinic was the same typical attack with additional symptoms of polyuria, dysuria and pruritus. The physical examination on admission showed a women 63 years of age, 5 feet 5 inches tall, weight 125 pounds; temperature and pulse normal; respiration 22. There was obvious jaundice, generalized arteriosclerosis, cardiac enlargement confirmed by x-ray, systolic murmur and a tremendous spleen. The size on palpation could be estimated at 13x7 inches. She has had edema of the ankles and shifting abdominal dulness indicative of ascites. Laboratory findings showed a high blood sugar and sugar in the urine. Her total red cells were 3,000,000; white, 4,500; differential count was normal. The first fragility test showed 0.48 to 0.38. That was in July, August and September of 1933. There are several diagnoses to be considered in her case. First, she is a definite case of diabetes mellitus; she is a rather advanced case of arteriosclerosis, chronic tonsillitis, and, we believe from that and subsequent findings, that she has chronic familial hemolytic jaundice. Her red count has ranged from 2,500,000 to 3,500,000. The reticulocyte count on frequent occasions has been from 4 to 15 per cent. The fragility test in the first instance was 0.48-0.38; about five repeated estimations showed the range to be probably between 0.50-0.40. Several of those were accurately controlled. She was sent to the Department of Surgery in consultation and splenectomy was recommended. She returned to Medicine and apparently that idea was approved, but there were some other factors in it that were not recorded but the fact remains that she was never operated upon. In addition, she is a borderline mental defective; a rather shaky operative risk. The suggestion that she go to the Department of Surgery scared her badly and I rather imagine that she would have serious mental complications preoperatively. The fact remains that she is probably slightly better off now than three years ago. I believe with the exception of age, that she is probably as well off now as 50 years ago. If we had had this woman at the onset of her illness 50 years ago, operation would have been the thing to do.

Dr. Burch (Department of Medicine): This case with a splenomegaly presents himself as a diagnostic problem. The patient is a white married male, aged 36 years. His illness began in 1932 with an insidious onset of fever, fatigue, malaise and chilly sensations. The symptoms increased in severity, later becoming associated with joint pains, profuse sweating (no characteristic odor being observed) and at times actual chills. His fever, malaise and chilliness have persisted for the past four years, occurring, however, only weekly and lasting for two or three days. The other symptoms have been present from time to time during the past four years, but have not been very prominent. During the past two years he has received inadequate antileutic treatment, 64 grains of quinine sulphate daily for five weeks, tonsillectomy and many drugs for symptomatic relief. In 1934, he came to the Hutchinson Clinic for study. On two occasions he was referred to Charity Hospital for observation and further study. His temperature usually reaches 102° and rarely goes as high as 103°.

The patient's past history is of little significance except for his venereal history. In 1918 he had a penile sore which was diagnosed as a chancre. He was given a complete course of antileutic treatment at the Algiers Naval Station. The patient's dietary habits have been normal but included raw milk.

The physical examination presented no findings of interest except an enlarged spleen. The spleen is rather firm, smooth, not tender and enlarged about 4 cm. below the costal margin on deep inspiration.

There have been many laboratory studies done, most of which have been normal, as blood picture, urinalyses, phthalein excretion, blood chemistry, blood culture (once), Wassermanns at least six times, gastric analyses, stools, spinal fluid, agglutination for typhoid, *paratyphoid A* and *B*, *B. proteus X*19, *B. dysenterae* (Hiss and Flexner), *B. melitensis* and *B. abortus*, coagulation time, bleeding time and platelet count, erythrocyte volume studies, two gastrointestinal series, urologic studies including roentgen ray and a gall bladder visualization which showed some failure of concentration. Skin tests for undulant fever were positive on two occasions and the average opsinophagocytic index was moderately phagocytic (average of 23 bacteria phagocytized per cell). There was some increase in the rate of sedimentation of the red blood cells.

The three diagnoses which have been most prominent during the course of his four years of illness are: (1) chronic malaria; (2) latent syphilis, and (3) abdominal Hodgkin's disease. However, at the present time, in view of the duration of his illness, the history and the laboratory findings (negative agglutinations, positive skin test, and moderately positive opsonophagocytic index) undulant fever appears to be the most probable condition. Undulant fever, however, is never an absolutely positive diagnosis without a positive blood culture.

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

Durng the month of June the Society held two meetings, a Scientific Meeting on June 8 and a Clinical Meeting at the United States Marine Hospital on June 22.

June 8

Clinical Syndromes Resulting from Dysfunction of the Endocrine Glands.

By: Dr. Edward H. Rynearson, Mayo Clinic, Rochester, Minnesota.

Dr. Rynearson answered questions put to him on interesting cases.

June 22

Clinical Meeting—United States Marine Hospital

1. Helium and Oxygen Therapy.
   By Dr. Wm. L. Smith.
   Discussed by Dr. James C. Cole and Ansel Caine.
2. Fractures of Long Bones and Methods of Treatment (Lantern Slides).
   By Dr. Richey L. Waugh.
   Discussed by Drs. Edward S. Hatch and Waldemar R. Metz.
3. The Shrunken Lung.
   By Dr. Antonio Mayoral.
   Discussed by Dr. Eleazar R. Bowie.
4. Wilm's Tumor with Report of Two Cases.
   By Dr. John A. Trautman.
   Discussed by Drs. Cassius L. Peacock and John A. Lanford.
5. Elephantiasis of Scrotum following Bilateral Inguinal Glandular Tuberculosis. (Case Presentation.)
   By Dr. Waldemar R. Metz.
   Discussed by Dr. M. T. Van Studdiford and E. von Haam.

Dr. Gilbert C. Anderson attended the Harvey Cushing Society held at Rochester, Minnesota.

Drs. Walter J. Otis, H. R. Unsworth and T. A. Watters attended the meeting of the American Psychiatric Association, American Phychoanalytic Association, American Psychopathological Association and the Association for the Study of Convulsive Disorders held recently in St Louis.

Dr. Otis also attended the American Association for the study of Mental Deficiency.

An honorary life membership in the Hotel Dieu Alumnae Association was presented Dr. Ruth G. Aleman at a meeting of the group held May 25, 1936. Dr. Aleman completed her nursing course in 1915, then took up the study of medicine, specializing in pediatrics.

We regret to report the loss by death of one of our active members, Dr. George Joseph Hauer.

Letters of Membership Transfer were issued to Dr. A. Scott Hamilton and Dr. Dudley M. Stewart. Dr. Hamilton is moving to Monroe, and Dr. Stewart to the Toledo Clinic in Toledo, Ohio, to practice bone and joint surgery.

Drs. Oscar Blitz and Dominick J. Geraci were elected to Active Membership.

Dr. Alton Ochsner received the honorary degree of Doctor of Science at the University of South Dakota, his Alma Mater, at Vermilion, S. D.

### TREASURER'S REPORT

| | |
|---|---|
| ACTUAL BOOK BALANCE: 4/30/36 | $2,611.27 |
| Credits: | $ 478.89 |
| | $3,090.16 |
| Expenditures: | $ 819.49 |
| ACTUAL BOOK BALANCE: 5/30/36 | $2,270.67 |

### LIBRARIAN'S REPORT

During May, 31 books were added to the library. Of these, 7 were received by purchase, 7 by binding, 4 by gift and 13 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is given below.

The Library has loaned 547 books and journals to doctors during the month, or more than one to each member of the Society. In addition, 720 volumes were loaned to students for overnight use, making a total of 1267. These figures do not include the great use of books and journals within the Reading Rooms.

On request of physicians, members of the staff have collected material on the following subjects during May:

Jake paralysis.
Injection of air into knee for Roentgen diagnosis.
Theories of Galen and Avicenna regarding varicose veins.
Ultrafiltration in allergy.
Women in medicine.
Injuries to semilunar cartilage.
Elephantiasis of penis.
Fibroma of ovary.
Teratoma of testicle.
Rennin.
Irradiation cataract.
Quinine in ophthalmology.
Epidemiology of undulant fever.
Pituitary cachexia.
Hirsutism.
Stricture of vagina.
Diabetic coma.
Undescended testicle.

The Library is closed during the evening hours in the months of June, July, August and September. Doctors who are unable to come for their books during the day, are requested to telephone the Library, and the material will be left for them at the Information Desk on the first floor.

### NEW BOOKS

Harrison, B. J. M.—Textbook of Roentgenology. 1936.

Zahorsky, John—Pediatric Nursing. 1936.

Clendenning, Logan—Balanced Diet. 1936.

American Medical Association—Training of the Neurologist and Psychiatrist. 1934.

Martini,—Principles and Practice of Physical Diagnosis. 1935.

Maltz, Maxwell—New Faces, New Futures. 1936.

Steindler, Arthur—Mechanics of Normal and Pathological Locomotion in Man. 1935.

Cabot, Hugh—Doctor's Bill. 1935.

Buehler, E. C.—Free Medical Care. 1935.

Harvey Society—Lectures, 1934-35. 1936.

Evans, C. L.—Recent Advances in Physiology. 1936.

Rhinehart, D. A.—Roentgenographic Technique. 1936.

Sansum, W. D.—Normal Diet and Healthful Living. 1936.

Miller, E. L.—Studies in North American Cercariae. 1936.

McIver, M. A.—Acute Intestinal Obstruction. 1934.

Practitioners Library of Medicine and Surgery. v. 10. 1936.

Gilbert C. Anderson, M. D., Sec.

## LOUISIANA STATE MEDICAL SOCIETY NEWS

### REPORT OF THE HOUSE OF DELEGATES TO GENERAL MEETING

The House of Delegates held their first meeting on Monday, April 27, 1936, and completed their work on Wednesday, April 29.

The President, Dr. Courtland P. Gray, presented a most interesting report and after due consideration by a committee this report was approved. The most important thought stressed in this report was the necessity of developing ways and means for the increasing of membership in our Society, which has practically been adopted as the present slogan of the Society.

The Secretary-Treasurer's report was submitted with a great deal of detail information concerning the activities of his office along with the financial status of our funds. This report evidences a rather favorable condition of our finances. A map with statistical data of the various Parishes was shown indicating their percentage of organization as of 1935. When this was presented it was very favorably received by the House. The special Committee on the Secretary's report took occasion to compliment the Secretary-Treasurer's office on the efforts and manner in which the affairs of the Society are directed.

The Chairman of the Council, along with the various Councilors of the eight Districts, submitted reports showing the present status of the Districts and offered some constructive suggestions for their respective Districts.

The Committee on Medical Education submitted the personnel of a subcommittee to arrange and to give appropriate study in effecting post-graduate study for the members of our Society. They approve most heartily the plan to include in the curriculum of the medical schools a course in the value of medical organization but they could not state how such additional education could be scheduled in their present curriculums.

The Committee on Scientific Work made their report which carried a recommendation, which was approved, that in arranging for the scientific program preference be given our members over out-of-State men, when consistent.

The Committee on Medical Defense presented a very comprehensive report covering the vast amount of work which they have been called upon to render during the past year, incident to malpractice suits which had been filed against our members. In their report they stated that they regretted having to refuse defense in one case, upon recommendation of their Counsel. This part of the report was discussed extensively on the floor of the House and the individual merits of the case forcibly presented, asking that the State Society grant medical defense protection to the physician in question. Appropriate resolutions were offered to cover this request, at the same time carrying recommendation that the By-Laws of the Society governing Medical Defense be appropriately revised in order to remove such objectionable features which might occur again. At the same time the request was made that the expenses in the defense of this case be paid out of the General Fund.

The Committee on Journal submitted a detailed report covering their work for the past year including both editorial and economic comments. Subsequent to this report the Journal Committee was complimented upon their work during the past year.

The Committee on Cancer submitted a very constructive report of their work during the past year and stated plans to be perfected for the carrying on of this work throughout the State. One hundred dollars was again appropriated for the expense of this work.

The Committee on Medical Economics submitted their report with the following recommendations: (1) That the American Medical Association formulate and state clearly its understanding of the present plan for medical services; (2) that they endorse the plan of the A. M. A. in regard to compulsory health insurance; (3) that the A. M. A. have a publicity committee in the interest of an educational campaign and (4) that the A. M. A. be urged to assume leadership in outlining a detailed plan for medical service which might develop. The Washington plan of sickness insurance was strongly recommended.

The Committee on Expert Testimony asked that an extention of time be granted in order to perfect their report for the next meeting of the Executive Committee.

The report of the Committee on Mental Health contained a recommendation that meetings in reference to Mental Health topics be arranged by Parish Societies. This was adopted.

The Advisory Committee of the Woman's Auxiliary submitted a report which was received and filed.

The Committee on Arsenicals submitted a report that recommended the support of the Louisiana State Board of Health in the prevention and treatment of venereal disease.

The Committee on Maternal Welfare made a report which was referred to the Executive Committee.

The State Board of Medical Examiners submitted a very comprehensive report which was adopted. Dr. J. J. Ayo of Jackson, and Dr. Clarence Lorio, Baton Rouge, were appointed as names to be submitted to the Governor at the expiration of Dr. Ayo's term in August 1936.

It was brought to the attention of the House that the Army Medical Library was in serious danger and was handicapped on account of the failure of congress to appropriate suitable funds for its maintanance. It was decided to approve a recommendation that the various Parish and District Societies have their respective Representatives and Senators use their influence and support in securing this appropriation which is the arm of medical service.

Upon the recommendation of the Budget and Finance Committee it was decided that when the Indigent Physicians' Fund reached $2,000 the 50 cents per capita allotted thereto would be deposited to the Medical Defense Fund until same reached $20,000.

The next annual meeting of the Society will be held in Monroe, La., in April, 26-28, 1937.

## STATE LEGISLATURE ACTION ON BILLS OF INTEREST TO MEDICAL PROFESSION

Below are detailed the various bills introduced into the Legislature during the present session, of interest to the medical profession, together with the action taken on them.

Senate Bill No. 251—Introduced by Mr. Cranor—Creating a Board of Chiropractic Examiners and regulating the practice. Killed.

Senate Bill No. 190—Introduced by Mr. Carbajal—Creating State Tuberculosis Commission. Has not come up yet for final disposition.

Senate Bill No. 44—Introduced by Mr. Brittingham—Permitting the use of certified copies of Charity Hospital records as evidence in Court. Killed in Senate. A similar Bill in House, with objectionable features removed, passed.

House Bill No. 208—Deleting all objectionable features of Senate Bill No. 44. Introduced by Mr. Blaise—Providing that a certified copy of records from either of the State Charity Hospitals and such records in court will be prima facie evidence of contact. Passed.

Senate Bill No. 45—Introduced by Mr. Brittingham—Making communications between doctor and patient privileged. No final action. Will probably be killed.

Senate Bill No. 46—Introduced by Mr. Brittingham—Making dying declarations admissable evidence in civil cases. Bill will probably pass, however no final action as yet. No objections.

Senate Bill No. 9—Introduced by Mr. Wingrave—Proposing a constitutional amendment for the issuance of $8,000,000 in bonds for the new main building of the New Orleans Charity Hospital. Passed Senate.

Senate Bill No. 7—Introduced by Mr. Ogden—Making a tax to the mental defective a penitentiary offense. Passed.

House Bill No. 83—Creating a State Hospital Board with the authority to contract for the care of indigent persons in privately owned hospitals and institutions. Passed.

House Bill No. 86—Authorizing State Board of Health to provide medical, surgical and other care to cripple children. Has passed House. Not before Senate yet.

House Bill No. 294—Introduced by Mr. Burke, Mr. Morvant and Mr. Stitch—Amending existing law authorizing Charity Hospital to issue $8,000,000.00 bonds for new plant. Passed.

House Bill No. 295—Mr. Burke, Mr. Morvant and Mr. Stitch—Amending dedication of $400,000.00 per annum corporation franchise tax for servicing Charity Hospital so as to permit dedication of funds to any purchaser of bonds. Passed.

House Bill No. 358—Introduced by Mr. Stitch. Privilege of recordation of births and deaths by hospitals. Passed.

House Bill No. 361—Introduced by Mr. Stitch—Authorizing physicians, midwives and others required to issue certificates of births and deaths to charge fee of twenty-five cents each. Bill passed House. Not before Senate yet.

House Bill No. 440—Introduced by Mr. Eastland and Mr. McCurnin—Provides for voluntary admission to insane hospitals. Killed.

House Bill No. 501—Introduced by Mr. Hand. Exempting chiropodists from paying any license to State, City or Parish. Passed.

House Bill No. 572—Introduced by Dr. Toler—Amending the act creating Board of Medical Examiners and regulating the practice of medicine and surgery in the State. Killed.

House Bill No. 681—Introduced by Mr. Scarns—Set up of School Childrens' Health and Medical Board—Appropriation of $200,000.00 for its support. Has not come up for final passage.

House Bill No. 688—Introduced by Mr. Burke—Amending the act relative to the practice of pharmacy. Passed.

House Bill No. 460—Prohibiting soliciting of business to adjusting personal injury or property damage arising therefrom. Passed.

House Bill No. 409—Introduced by Mr. Gilmore—Requiring that reflector glasses be placed on all automobiles—front and rear. Passed.

Senate Bill No. 155—Introduced by Mr. de la Houssaye—Relieving automobile operators of responsibility for injury caused to guest passengers except by willful misconduct. Passed.

House Bill No. 355—Making State Board of Health a central filing office for records of marriage. Passed.

House Bill No. 356—Providing for the recordation of certificates in case of stillborn child as in case of death. Passed.

House Bill No. 358—Requiring hospital to furnish lists of births and deaths to State Board of Health monthly. Passed.

House Bill No. 360—Authorizing the State Board of Health to compel City and Police Juries to file vital statistics. Passed.

House Bill No. 464—Introduced by Mr. Morvant. To define a maternity home and to provide for the investment and superivison of maternity homes by the State Board of Health and State Department of Public Welfare. Requiring every maternity home to obtain an annual license from the State Department of Public Welfare with the approval of the State Board of Health. The content of license is defined in this Bill. The Bill forbids any person connected with a maternity home to dispose of any child, requiring every maternity home to report abandoned children to the State Department of public welfare within 24 hours after abandonment. This Bill passed the House but will probably be killed in the Senate.

There have been a number of compensation bills introduced. Efforts have been made to have the minimum doctors' fee increased from $250 to at least $350 or more.

C. Grenes Cole, Chairman,
Committee Public Policy and Legislature.

## NEWS ITEMS

Dr. O. W. Bethea, Professor of Therapeutics in the Graduate School of Medicine, Tulane University, was honored by being asked to participate in the graduate short course put on by the University of Florida and the Florida State Medical Association from June 22 to June 27.

Dr. Wiliard R. Wirth, Assistant Professor of Clinical Medicine in the Graduate School of Medicine, Tulane University, addressed the 15th meeting of the Fort Smith Clinical Society at Fort Smith, Arkansas, on Wednesday, June 10, 1936, on "The Significance of Cardiac Arrhythmias as Encountered in General Practice", with lantern slide demonstrations.

Dr. Charles J. Bloom, Professor of Pediatrics in the Graduate School of Medicine, The Tulane University of Louisiana, addressed the State Medical Association of Texas at their meeting held May 25, 26, 27 and 28 at Houston, the titles of which were as follows:

"The Evaluation of Teeth in Pediatrics"; "Hyperthyroidism in Children"; "Rickets"; "Appendicitis in Children".

Dr. C. C. Dauer, Professor of Preventive Medicine in the Graduate School of Medicine, The Tulane University of Louisiana, will be absent from the city from June 15 to August 15. The purpose of his absence is to carry on tuberculosis study in Savannah, Ga., Washington, D. C., New York City, Louisville, Ky., and cities in Tennessee. Upon completion of this work Dr. Dauer will spend his vacation in the North.

Passed Assistant Surgeon C. B. Spncer has been relieved from duty, U. S. Quarantine Station, New Orleans, (Algiers) Louisiana and assigned to duty at the U. S. Quarantine Station, Mobile, Alabama.

Passed Assistant Surgeon R. B. Holt has been relieved from duty at the Marine Hospital, New Orleans, Louisiana and directed to report to the Assistant Surgeon General in Charge of the Hospital Division, U. S. Public Health Service, for duty.

Acting Assistant Surgeon H. M. Heitsch has been relieved from duty, U. S. Marine Hospital, New York City, N. Y., and ordered to U. S. Quarantine Station, New Orleans (Algiers) La., for duty.

Acting Assistant Surgeon Joseph P. Chiasson has been relieved from duty, U. S. Marine Hospital, Mobile, Alabama and directed to proceed to the U. S. Quarantine Station, New Orleans, (Algiers) Louisiana.

Surgeon H. E. Trimble has been relieved from duty at the San Francisco Quarantine Station and directed to proceed to the U. S. Quarantine Station, New Orleans, (Algiers) Louisiana, and assume charge of quarantine station and medical inspection of aliens at that place.

Assistant Surgeon Paul E. Walker has been relieved from duty, Los Angeles Quarantine Station, Calif., and directed to proceed to New Orleans, La., for duty.

Acting Assistant Surgeon F. C. Makepeace has been relieved from duty at the U. S. Quarantine Station, New Orleans, (Algiers) Louisiana and directed to proceed to the U. S. Quarantine Station, Honolulu, T. H.

## 1936 GRADUATE FORTNIGHT
## of the
## NEW YORK ACADEMY OF MEDICINE

For the Annual Graduate Fortnight of the New York Academy of Medicine a subject of outstanding importance in the practice of medicine and surgery is selected and is presented from as many angles as possible. An attempt is made to offer to the profession a grasp of the advances in medicine so that the busy practitioner may be informed as to the last word on a given topic.

The Ninth Annual Graduate Fortnight will be held October 19-31 and will be devoted to a consideration of Trauma; Occupational Diseases and Hazards.

Twenty-three important hospitals of the City will present coordinated afternoon clinics and clinical demonstrations. At the evening meetings prominent clinicians from various parts of the country who are recognized authorities in their special lines of work will discuss various aspects of the general subject.

Complete information may be obtained from Dr. Frederick P. Reynolds, The New York Academy of Medicine, 2 East 103d Street, New York City.

## SPECIAL NOTICE

Special attention is directed to physicians leaving the city to the fact that appropriate announcement in the professional cards can be arranged for $2.00 per insertion. Communicate with our office in regard to details.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census reports that for the week ending May 16, there were 147 deaths in the city, divided 81 white and 66 colored, giving a rate for the group as a whole of 16.0; for the white race 12.4 and for the negro 24.7. The infant mortality rate this week was 93. For the next week, ending May 23, the 21st week of the year, the death rate had increased to 16.5 as a result of 152 deaths. These were apportioned 77 white; rate 11.8, and 75 colored; rate 28.1. The infant mortality rate which was 81 about corresponded with the previous week. For the week ending May 30, the number of deaths dropped to 144; 94 due to deaths in the white race and 65 in the negro. The death rate for the whole group was 15.6; the white 12.1 and the negro 24.4. The infant mortality rate dropped this week to 64. For the week ending June 6, there was a sharp rise in the number of deaths; 178 people expired this week. Of these 103 were white, with a rate of 15.7 and 75 were negroes with a rate of 28.1. The death rate for the group as a whole was 19.3. The infant mortality rate was 64.

## INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the State of Louisiana, which contain the following summarized information: For the 21st week of the year, ending May 23, there were reported 88 cases of whooping cough, 72 of measles, 60 of pneumonia, 52 each of malaria and pulmonary tuberculosis, 44 of influenza, 36 of cancer, 25 of syphilis, 12 of diptheria and 11 of typhoid fever. In this week there was a very sharp decrease in the number of cases of influenza. In the report for the previous week there were 506 cases listed as contrasted with 44 this week. Of the unusual diseases, 1 case of spinal meningitis was reported from Orleans Parish and 1 case of tularemia from Sabine and 1 from Orleans. The report of the 22nd week of the year, ending May 30, showed whooping cough still prevailing, 59 cases being listed with the following diseases in frequency appearing in double figures: 47 of syphilis, 43 each of pneumonia and pulmonary tuberculosis, 32 of measles, 24 of malaria, 10 each of typhoid fever and cancer. Typhoid fever cases were repored throughout the State, not one Parish having more than 2 cases. There were 3 cases of tularemia listed this week. For the week ending June 6, syphilis came into its own again, leading all reported diseases as is the usual custom, 68 cases appearing on the list, followed by 41 cases of whooping cough, 38 of malaria, 36 of tuberculosis, 24 of cancer, 22 of pneumonia, 15 of typhoid fever, 14 of diphtheria, and 13 of measles.. Franklin Parish was the only Parish in the State with more than 2 cases of typhoid fever. There were 3 cases of cerebrospinal meningitis reported from Orleans Parish, one of which was imported. For the 24th week of the year, ending June 13, there was a sharp increase in the number of cases of pneumonia, 52 appearing on the report for this week. This was followed by 40 of malaria, 31 of pulmonary tuberculosis, 27 of cancer, 25 of syphilis, 22 of influenza, 15 of measles, 13 of typhoid fever and 11 of diphtheria. Of the rarer diseases, 1 case of smallpox was reported from Red River Parish, 2 cases of poliomyelitis; 1 from Concordia and 1 from Franklin Parish. Of the 3 cases of tularemia reported, 2 were from East Carroll and 1 from Sabine.

## WOMAN'S AUXILIARY

### Louisiana State Medical Society

President: Mrs. James Byron Vaughan, Monroe.

President-Elect: Mrs. George D. Feldner, New Orleans.

First Vice-President: Mrs. F. G. Ellis, Shreveport.

Second Vice-President: Mrs. T. H. Watkins, Lake Charles.

Third Vice-President: Mrs. E. B. Middleton, Homer.

Fourth Vice-President: Mrs. R. R. Arceneaux, Welsh.

Recording Secretary: Mrs. C. Grenes Cole, New Orleans.

Corresponding Secretary: Mrs. Joseph P. Brown, Monroe.

Treasurer: Mrs. Courtland P. Gray, Monroe.

Parliamentarian: Mrs. R. T. Lucas, Shreveport.

## CADDO PARISH

The Woman's Auxiliary to the Shreveport Medical Society held its annual business meeting in the home of Mrs. J. A. Hendrick on Jordan Street.

With Mrs. F. G. Ellis presiding, the annual business reports were given. Mrs. Sam Kerlin, delegate to the State Medical Auxiliary meeting gave an account of the meeting held in Lake Charles and displayed the minature model of The Pines Preventorium which was exhibited at the meeting there and in Kansas City. Mrs. C. P. Rutledge, delegate to the National Association in Kansas City, gave a report of the meeting. The business was concluded with the installation of the following officers for the ensuing year:

President: Mrs. R. T. Lucas.
President-Elect: Mrs. J. T. Crebbin.
First Vice-President: Mrs. W. J. Sandidge.
Second Vice-President: Mrs. M. S. Picard.
Recording Secretary: Mrs. E. L. Gill.
Corresponding Secretary: Mrs. J. M. Bodenheimer.
Publicity Chairman: Mrs. M. D. Hargrove.
Parliamentarian: Mrs. C. E. Rew.

Mrs. M. D. Hargrove, Publicity Chairman.

## JEFFERSON DAVIS PARISH

The Woman's Auxiliary to the Jefferson Davis Medical Society entertained their husbands with a chicken barbecue May 21 at the home of Dr. and Mrs. J. W. Faulk in Crowley. The Faulk's lovely garden back of their home was all that could be desired for a perfect setting for the occasion. This was the Auxiliary's first attempt to entertain their husbands; it proved to be a grand success and long to be remembered. There being no auxiliary in Acadia Parish, Mrs. Faulk is affiliated with that of Jefferson Davis.

Most of the members attended the state convention held in Lake Charles. One of our members, Mrs. R. R. Arceneaux, was elected fourth vice-president at the convention.

The officers elected to serve our auxiliary for the ensuing year are:

President: Mrs. G. W. Remage, Jennings.
Vice-President: Mrs. Claude A. Martin, Welsh.
Secretary: Mrs. R. R. Arceneaux, Welsh.
Treasurer: Mrs. F. W. Harrell, Jennings.

We are proud of the addition of the two new members, making our membership total ten.

Dr. and Mrs. F. W. Harrell of Jennings are enjoying a summer home at Lake Arthur.

Dr. and Mrs. R. R. Arceneaux of Welsh have just returned home from a ten-day trip to Mexico.

Mrs. Claude A. Martin, Publicity Chairman.

### OUACHITA PARISH

The Woman's Auxiliary to the Ouachita Parish Medical Society held both its April and May meetings at the Lotus Club. Interesting programs were rendered and delectable luncheon was enjoyed. The outstanding feature of these meetings were the two speakers who brought to us interesting topics of discussion—Dr. John Snelling using as his subject "Cancer" and Dr. D. M. Moore, "Roentgenology."

Mrs. A. G. McHenry and Mrs. C. P. Gray brought news of interest from both the state meeting of the Woman's Auxiliary to the Louisiana State Medical Society which convened in Lake Charles and from the Woman's Auxiliary to the Mississippi State Medical Society which convened in Jackson.

After the reports were given every member pledged herself and her efforts to making this year's work the most outstanding.

The following officers were elected for 1936-37:

President: Mrs. J. P. Brown.
First Vice-President: Mrs. A. L. Peters.
Second Vice-President: Mrs. A. D. Tisdale.
Treasurer: Mrs. I. J. Wolff.
Recording Secretary: Mrs. D. T. Milam.
Corresponding Secretary: Mrs. Henson Coon.
Publicity Secretary: Mrs. W. L. Bendel.
Historian: Mrs. P. L. Perot.
Parliamentarian: Mrs. E. R. Young.

Mrs. W. L. Bendel, Publicity Chairman.

### A. M. A. MEETING

For the following interesting and delightful report of the Woman's Auxiliary meeting in Kansas City, Mo., in May, we are greatly indebted and thankful to Mrs. A. L. Levin of New Orleans.

"Upon the receipt of an official envelope from New Orleans on the afternoon of my arrival in Kansas City, I was converted from an interested spectator to a delegate representing the Auxiliary to the Louisiana State Medical Society. I was accorded the pleasant duty of reading the State President's annual report.

"I have always felt that conventions could be compared to a melting pot where each delegate brings her bit of precious metal, places it in the seething cauldron, mixes it well and then tries to remold something useful and tangible for the benefit of the organization. Over 1200 doctors' wives, sisters, mothers and widows registered at this convention and it was indeed most interesting and very inspiring to exchange ideas with our sister states and with visitors from Cuba, Honolulu and even from far off China.

"One of the highlights of this gathering of representative women was a personal message from the President of the United States congratulating our capable National President, Mrs. Rogers N. Herbert, for her splendid work along humanitarian lines and particularly her splendid accomplishments in the field of care for the crippled child. The health education program seemed to be one of the outstanding features in the states and toward that end, circulating libraries were established and periodic talks were given by outstanding physicians, and in some of the rural districts, first-aid courses were given, also courses in 'Home care of the Sick.' It is most natural for doctors' families to be interested in hospital work and many state auxiliaries have been active in this field. Contributions have been made ranging from $50.00 for supplies to $200.00 to help liquidate a mortgage.

"In some communities, student loan funds were sponsored for the education of members of doctors' families. Subscriptions to Hygeia were doubled in many states and even trippled in some localities. The membership of the National Auxiliary was reported as having had its greatest increase in years, the membership now standing at 16,525. In my humble opinion, the most outstanding accomplishment was reported by the Committee on Legislation of the Auxiliary to the Oregon State Society who was responsible for defeating legislation to socialize medicine. This is a question which may strike close to home at some time in the future and it is well for us to be prepared to do our bit.

"In evaluating the store of information received from the many national and state reports, one must realize that the activities of each State auxiliary must be governed by the needs in that particular locality. Inasmuch as Louisiana has filled all the requirements of the Governing Board of its State Medical Society, it has served its purpose well and Mrs. H. B. Gessner, our lovable State President, is to be congratulated upon her accomplishments during 1935-36."

The above report is intensely interesting and inspiring and our hearts should swell with pride when we note what splendid work this woman's auxiliary is accomplishing. Let us hope that these accomplishments will merely be steppingstones to even greater goals in the large and diversified field of endeavor that is open to us.

Mrs. George D. Feldner, Chairman,
Press and Publicity.

# BOOK REVIEWS

*The Management of Colitis*: By J. Arnold Bargen, M. D., F. A. C. P. New York. National Medicine Book Company, 1935. pp. 233. Price $3.00.

The author has, in the short space of 233 pages, presented a rather complete review of colon disease, organic and functional. The volume begins with a consideration of the normal colon from an anatomic and physiologic aspect; then there is presented the etiology, pathology, diagnosis, complications and treatment of chronic ulcerative colitis, amebic colitis, tuberculous colitis, mucous colitis or irritable colon, and finally a group of conditions to be distinguished from colitis.

Chronic ulcerative colitis is given special emphasis which can be understood since the author has devoted much time and contributed much in this field. The bacteriological and cultural methods for isolating the diplococcus, which Bargen considers fairly specific in the etiology of the disease, is given in detail. Whether or not one accepts the specificity of the "Bargen diplococcus" as the cause of the disease one must have respect for the results the author has obtained at the Mayo clinic with a large series of cases.

Complicatons of chronic ulcerative colitis are fully discussed. There are relatively few complications considering the large ulcerating surface. Perirectal abscess is the earliest and most frequent complication; this is closely followed in frequency by rectal stricture. Other complications include septic conditions as endocarditis, arthritis, erythema nodosum and uveitis. Carcinoma occurs in only 2 per cent of the cases, and polyposis was found as a complication in 9 per cent of cases. Pyodermia gangrenosa is a skin complication of chronic ulcerative colitis.

Treatment of chronic ulcerative colitis includes general measures in regard to diet, rest, removal of foci, vitamins, drugs, blood transfusions, as well as specific therapy. A specific serum is used. This serum is made by immunizing horses against strains of the diplo-streptococcus. This serum is given to the acute cases either intravenously or intramuscularly, depending on the severity of the cases. Irrigations are condemned generally.

Surgery is resorted to only when all medical measures have failed, or in cases of emergency as in uncontrollable hemorrhage. Ileostomy is the surgical treatment of choice.

Amebic and tuberculous colitis are given rather brief but complete discussion as to their definition, history and evidence; etiology, pathology, diagnosis and treatment. Final diagnosis rests on bacteriological and microscopic findings. Stress is rightfully laid upon the use of the proctosigmoidalscope in investigating these conditions, especially amebiasis. Methods of identifying and finding the amebic cysts are given. The author is partial to emetine and treparsol in the treatment of amebiasis.

Mucous colitis with its various synonyms is given thorough consideration. As underlying causes are given: overwork, overeating, fatigue, nervous tension, exposure, local irritations by laxative and colonic irrigations. The treatment includes reassurance of patient, rest, and bland diet. Colon irrigations are condemned.

Conditions to be distinguished from colitis are discussed in the following order: polyposis, cancer, regional ulcerative colitis, regional enteritis, diverticulosis, and diverticulitis, food poisoning, typhoid fever, bacillary dysentery, parasitic dysentery exclusive of amebic dysentery, granulomatous lesions, actinomycosis, appendicitis, inflammation of Meckel's diverticulum, sprue, pellagra, pernicious anemia, exophthalmic goiter, uremia, benign and rare tumors, fecal impaction, foreign bodies, volvulus and intussusception, hemorrhoids, and agranulocytic angina.

Excellent illustrations of pathological specimens and x-rays supplement the descriptive matter. Case histories and personal experiences with patients are described after the consideration of each condition. In general this volume is a useful compilation of our present day knowledge of this important problem, colon disease.

Herbert L. Weinberger, M. D.

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*Clinical Atlas of Blood Diseases*: By A. Piney, M. D., M. R. C. P. and Stanley Wyard, M. D., M. R. C.P. 3d. ed. Philadelphia. P. Blakinson's Son & Co., Inc., 1935. pp. 109. Price $4.00.

Rare indeed does one find a text-book of hematology so condensed and so beautifully illustrated as the Clinical Atlas by Piney and Wyard. As stated by the authors in the preface to the first edition the book is intended to fill a need for which no other recent book even pretends to cater. It is a small volume in which is combined the essential features of a text-book of haematology with an atlas, so that the practitioner or student is able to find a brief account of most any haematological malady with which he comes in contact and if presented with a blood-film is able to find an illustration corresponding with its general character. In the third edition the whole of the text has been revised and rewritten to conform to the progress in clinical haematology.

This little book contains: (a) Conditions in which the main incidence of the disease is on the red cells or on the erythropoiesis.

(b) Conditions in which the main incidence of the disease is on the white cells or on the leukocytopoiesis.

(c) Conditions in which the main incidence of the disease is on the spleen.

(d) The so-called hemorrhagic diathesis.

Since malaria is a disease found in practically all parts of the world and the blood cells, especially the erythrocytes play an important part in the growth and development of the malarial parasite, one would naturally expect such an excellent Atlas as this to include a chapter on malaria with plates showing the various forms and the blood cell changes.

The teacher, student, practitioner and specialist seeking information of the most recent views of diseases of the blood will find no better reference than Clinical Atlas of Blood Diseases by Piney and Wyard.

Elizabeth Bass, M. D.

*The True Physician*: By Wingate M. Johnson, M. D. New York. The MacMillian Publishing Company, 1936. pp. 157. Price $1.75.

Occasionally one is privileged to review a volume which is so good that he feels almost inclined to shout so that all might hear "this is a book that you should read". After reading Dr. Johnson's volume this is the feeling that I have.

In the practice of medicine there are certain fundamentals which every doctor is supposed to be familiar with—The Oath of Hippocrates and the Code of Medical Ethics. The Oath of Hippocrates may be likened to our Constitution and the Code of Medical Ethics to the laws which are accepted by all. Authors in various periods have rendered judgments similar to those of our Supreme Court decisions. The Religio Medici of Thomas Browne; The Confessio Medici of Sir James Paget; The Consecratio Medici of Harvey Cushing; The Doctors' Table Talk by James G. Mumford; The Soul of the Surgeon by Rudolph Matas are representative of the type of guides for the conduct of the doctor which have been written in the past.

Now comes Dr. Johnson with the True Physician. This volume must be the mirror of his own life and work. It could not have been written by any one except an individual with ideals, and he has set these down for the benefit of the future generations.

It has been said that talking to a friend is like thinking out loud. Those who read this volume will count themselves fortunate, as they, at least, can feel that Dr. Johnson has acted as a true friend to them.

The advice to the intern and to the young doctor is on the whole so good that I think that each graduate in medicine should procure a copy, put it on his desk and make use of it as he would an encyclopedia. In truth it is encyclopedic in information and as a guide for conduct.

The admonitions for the cultivation of habits of study, courtesy, gentleness, attentiveness to duty, as well as those with reference to reading, writing and attendance at medical meetings should be accepted for their full value.

Quotations from this volume would be interesting, but I think that it is such a book that one should read leisurely, make notes, put it aside and then reread it when in doubt.

Dr. Johnson is to be congratulated on having written this volume and the profession should be grateful that such a volume is available for the guidance of so many. This is one time when it may be said with truth, this book should be in every doctor's library.

Isidore Cohn, M. D.

*Preventive Medicine and Hygiene*: By Milton J. Rosenau, 6th ed. New York City. D. Appleton, Century Company, 1935. pp. 1481. Price $10.00.

Rosenau, in this new edition, has again proved that preventive medicine moves forward with the general trend of scientific advance. In it he has broadened the scope of the earlier editions by including certain aspects of preventive medicine which have heretofore been neglected not only by preventive medicine but most other standard textbooks as well. In particular, the author has extended his views on the important subjects of personal, mental and social hygiene. In the latter, he has boldly included new chapters on sex hygiene and contraception. The new emphasis on the hygiene of personal living has removed any possibility of looking on this work as a reference book only for sanitarians and public health workers. It is unequivocally a reference book for practitioners.

For the man in general medicine there is no more useful resume on the dermatoses which he finds on his patients than the chapter and tables on occupational diseases. In these sections the physician who is generally unaware of the many agents of disease with which the tradesmen and laborers come in contact in their daily work, will find a most useful and comprehensive discussion of where these toxic agents exist and how his patients come in contact with them.

The author has retained the high quality of his work as an authentic reference source for workers in all branches of public health and industrial medicine. But what impresses the reviewer is his success in accomplishing the difficult task of bringing the challenge to the general practitioner to interest himself more in the prevention of disease and at the same time showing him the way he can do it.

W. H. Perkins, M. D.

*A Textbook of Surgery*: By American Authors. Frederick Christopher, ed. Phila. W. B. Sounders Co., 1936. pp. 1608. Price $10.00.

Two types of textbooks are available for the student, one which is becoming increasingly less common in this age of advancement by geometrical progression by a single author, the other by an editor, who wisely or unwisely chooses his contributors. Perhaps no surgical text by a single author has or ever will enjoy the popularity received by Osler's textbook of medicine. There are or have been certain advantages to the one man edition; viz., arrangement, lack of repetition, and, if he is an author in singular merit like Osler, style, but these advantages in the last few decades have become outweighed for any one except a genius by knowledge which has become so vast and extensive with modernity, up-to-dateness in all ranges of the various subjects of a particular specialty. There is an indefinite limit to the speed with which a single mind can assimilate and rearrange material for a text and that limit, variable as it is, has been approached because of the increasing aggregation of knowledge so that now either authority or authenticity, or both, is liable to violation by the ambitious one who attempts the huge task of writing alone a text that would be successful. Thus today there is more and more *raison d'etre* for the text edited by one man, written by many.

What distinguishes a textbook from a "System" is something more than a single or pleurality of volumes. In the System a fulness of knowledge comprising even the marginal advances of uncertainties as well as the apparently certain is permissible. There is room and a receptive audience for the reasons and weighing of the proof and an appraisal of new facts and theories by setting down the evidence accumulated from many sources. Because of space, for one thing, but even more because of the objective in the textbook, polemics must not be engaged in, the relative merits of theories must not be weighed at length. Indeed, theories are dangerous to present as such, because of weakening the pedantic effect of such truthfully acknowledged uncertainties. Every one knows that a theory presented as a fact may be overruled even in the near future, but in a text unless there is very weak proof for a statement it may be given as fact. It remains for the research worker and profound student of a clinical subject to discourse at length about the relative merits of this or that evidence, present statistics and the pros and cons of any subject. As a rule such detailed consideration is above the undergraduate student and will discourage most of them. They look for something concrete if not brief, something that they can encompass and retain and put down in examinations. Journals are the fields for impractical irrelevancies, contentiousness and ultrascientific presentations.

Christopher's textbook of surgery is not brief. There are 1608 pages, including the index, and 728 illustrations. But this dangerous approach to being too long is certainly obscured by its excellent characteristics. The 174 contributors in by far the majority of instances are not only authorities but the authority on the subject on which they write, and the remaining minority are certainly authorities. Moreover, thanks to the editor the material is presented in a vigorous, forceful, authoritative manner that gives the impression that the contributors have not taken advantage of this opportunity to advance their own particular hobby or prove a point, and that they are thinking more of those who are to receive than themselves; that they are presenting the essence of knowledge on a subject. A preliminary survey of the anatomy and physiology of each subject is given, followed by modern knowledge of symptomatology and therapy. Technical operative procedures are given briefly but adequately. A brief bibliography is found at the end of each subject. Should one make a definite attempt, a few critical remarks could be made, but that would be an effort. The reviewer believes this is outstandingly the best single volume textbook of surgery available today for the student and practitioner.

Howard R. Mahorner, M. D.

*Roentgenographic Technique*: By Darmon Artelle Rhinehart, A. M., M. D., F. A. C. R. 2d ed. Philadelphia. Lea & Febiger,pp. 430 with 183 engravings. Price, $5.50.

This is the second edition of a well known work on roentgenographic technic. Although the general plan of the book has not been changed, the text has been revised and recent advances in technic, one new chapter, and twenty-four new figures have been added.

The various parts of the unit roentgen ray machine are discussed and described. The author's discussion of dark room procedure is adequately covered. Due consideration is given to protection. Suggestions are made for positioning and proper control of the fundamental factors in the various anatomical regions. Of considerable interest is the author's discussion of various experimental procedures for the study of the relationship and variations of the fundamental factors. The figures and reproductions are very good and the technical directions of the text are clearly presented. The rather complete bibliography added to each chapter in addition to the text should make this book a valuable reference in the roentgen laboratory. It is recommended to all technicians, medical students and physicians who are interested in roentgenographic technic.

J. N. Ane, M. D.

*A Textbook of Roentgenology*: The Roentgen Ray in Diagnosis and Treatment: by Bede J. Michael Harrison, M. B., Ch. M., D. M. R. E., (Cantab.) F. A. C. R. Baltimore. William Wood & Co., 1936. pp. 888 with 238 illus. Price, $10.00.

Many splendid and complete studies have appeared on selected portions of roentgenology and radiology from time to time. The acquisition of these works by the physician specializing in radiology was necessary. However, because of the limited field covered by each monograph, it was difficult and often impracticable for the physician, who was not specializing in radiology, to acquire or to study a sufficient number of these works to obtain a knowledge of roentgenology, adequate for his particular needs. Medical students likewise lacked a single complete textbook in roentgenology which considered this subject in terms of their pathological and clinical knowledge.

The author has admirably and adequately covered the entire field of roentgenology in a single volume, devoting more space to the more important conditions and correspondingly less to those conditions of less importance. This is probably the only complete textbook of roentgenology, in English, efficiently bridging the gap between pathology and roentgenology.

Special clinical laboratory findings are mentioned in those conditions where such findings are valuable to complete the picture. Roentgen therapy is considered in the light of the effect of irradiation on the special histological picture present in each condition.

The first six chapters of the book are devoted to the consideration of general subjects, such as physics, radio-physiology and biology, inflammation, and infection. One chapter deals with the dangers of x-ray and radium and the recommendations for protection. The remainder of the book consists of a division into chapters devoted to the various systems and organs. The normal roentgen anatomy of each organ or system is discussed at the beginning of each chapter. The various conditions peculiar to that organ or system are then considered with due regard to the pathological-roentgenological relationship. A complete index is added. It is unfortunate that space did not permit the addition of at least a brief bibliography on each subject.

This volume should prove of invaluable aid to medical students, internes, and physicians in all specialties. An accurate knowledge of the indications and limitations of the roentgen ray in each clinical condition may be obtained by the reader. It should aid in establishing closer cooperation between the internist and the roentgenologist. It should prove of much assistance to the roentgenologist as a reference book and also as a reminder of the close association of pathology and roentgenology.

Leon J. Menville, M. D.

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*The Harvey Lectures*, 1934-35: Delivered under the auspices of the Harvey Society of New York. Baltimore. Williams & Wilkins Co., 1936. pp. 270. Price $4.00.

This thirtieth series of lectures is so excellent that it is difficult to choose any particular one for comment, but of most interest to the clinician is probably the discussion of "Pneumothorax in the Treatment of Pneumonia", by Dr. Francis G. Blake, of Yale. The evolution of the pneumonic lesion is clearly and briefly discussed from several points of view and the conclusion reached is logical and based upon convincing data. The use of pneumothorax in the treatment of 42 cases of lobar pneumonia furnishes the basis of Dr. Blake's observations and he concludes that if this measure is to be of benefit it must be instituted early in the course of the disease and is likely to be of little or no value after 72 hours. The lecture of Dr. Wm. C. Rose on "The Significance of the Amino Acids in Nutrition" is a fascinating study leading to an understanding of the role of the components of the proteid molecule in diet, and perhaps pointing to the synthesis of a perfect nitrogenous food. It seems clear that many of the amino acids may be excluded from the diet without harm to nutrition, but that a considerable number are absolutely essential. It is admitted that all of the amino acids are not known, and that perhaps the most important of them are among these.

The volume is of attractive size and appearance. The print is excellent; there are no illustrations.

Chaille Jamison, M. D.

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## PUBLICATIONS RECEIVED

Lea & Febiger, Philadelphia: Extra-Ocular Muscles by Luther C. Peter, A. M., M. D. Sc. D. The Diagnosis and Treatment of Pulmonary Tuberculosis by John B. Hawes, 2nd., M. D., and Moses J. Stone, M. D.

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## AURICULAR FIBRILLATION*

M. D. HARGROVE, M. D.
Shreveport, La.

Auricular fibrillation is one of the most common, most interesting, and most important irregularities of the heart. Through the work of Mackenzie, Rothberger, Winterberg and Lewis, its exact clinical status and mechanisms have been established.

The present conception of the abnormal mechanism, responsible for auricular fibrillation, is that of circus movement or a contraction wave continuing to circulate around a band of muscle. This conception explains both auricular flutter and auricular fibrillation, with the distinction that in flutter the contraction wave follows a more orderly course. The rate of circulation of the excitation and contraction wave in the auricular muscular circuit in auricular fibrillation is very rapid, averaging about 500 per minute, and varying between 400 and 600. The ventricular response to this abnormal auricular mechanism is grossly irregular and usually rapid, at about 150 per minute. The ventricular response may be much slower as the result of drug therapy or partial or complete A. V. block.

Auricular fibrillation may occur in the absence of organic heart disease but it occurs more often in the presence of organic heart disease. It is not due to any particular type of pathology or as White[1] states, "There is no pathology characteristic of auricular fibrillation". As demonstrated by Yater,[2] it may be found with various degrees of pathologic changes but in the presence of the same or more extensive pathology, auricular fibrillation may not occur. It appears to be, therefore, a physiologic abnormality occurring most frequently in hearts that are damaged by disease. Its mechanism is one of abnormal conduction in the auricular muscle dependent upon: (1) morbid structural changes in the muscle fibers; (2) alterations in the nutrition and metabolic processes of the auricular muscle; (3) possibly nervous influences or increased vagal tone.

According to most observers it occurs most frequently in the rheumatic and arteriosclerotic types of heart disease. The following table gives the incidence as reported by various observers:

| | Rheumatic | Arterio-sclerotic | Thyroid | Hyper-tensive | Syphilitic | Miscellaneous |
|---|---|---|---|---|---|---|
| Stroud | 48 | 35 | 3.5 | — | 9 | 4.5 |
| Cookson | 69 | 22 | 7 | — | 2 | — |
| McEachren and Baker | 34.4 | 48 | 8 | — | 3 | 7 |
| White | 45.8 | 21.4 | — | 4.3 | — | — |

In a small group of 37 cases, seen at the Shreveport Charity Hospital and definitely proved by electrocardiographic studies, the incidence in the various types of heart disease was: rheumatic five, or 13.5 per cent; arteriosclerotic and hypertensive 23, or 62.2 per cent; syphilitic two, or 5.5 per cent; thyroid four, or 11 per cent; toxic three, or 8.8 per cent, (alcoholic one, pneumonia one, pregnancy one). It is evident that the essential difference in incidence as found here and elsewhere is due to the difference in incidence of the types of heart disease, particularly rheumatic heart disease.

In our series, as generally found elsewhere, males predominated 27 to 10 and the greatest incidence occurred in the fifth and sixth decades. The average age in the different groups was: rheumatic, 36.2 years; arteriosclerotic and hypertensive 65.3 years; syphilitic 34.5 years; thyroid-toxic adenoma three, average age 47.7; exopthalmic goiter one, age 34 years; and toxic three, average age 51 years. Few cases have been reported in the first and second decades. In our group, two cases occurred in the third decade, one rheumatic and one syphilitic.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

It was difficult if not impossible to judge the onset of fibrillation in our group, but with one exception, all were fibrillating on admission. The duration of symptoms varied from one week to eleven years. In the thyroid group, with toxic adenoma, symptoms of fibrillation were present for three years, seven years and eight weeks, and in the exopthalmic goiter, for three months. In the rheumatic group they varied from two months to eleven years, average duration three years and five months, and in the arteriosclerotic-hypertensive group, from two weeks to seven years, average duration, eighteen months.

Congestive failure was present in 32 of the cases and a definite enlargement of the heart, of varying degree, in 29. There was a history of substernal distress, anginal in character in four cases, all of the arteriosclerotic-hypertensive group, and one of these had such an attack while on the ward. Apparently true angina is rare during fibrillation, and if formerly present may cease after the onset of fibrillation.

An acute respiratory infection seemed to be the precipitating factor in eight cases. These had either recently had such an infection or had same on admission. They were all apparently able to carry on their usual occupation prior to the respiratory infection, but either during the course of same or immediately afterwards, they developed congestive failure with auricular fibrillation. Lewis and others have pointed out repeatedly the relationship of acute respiratory infections to congestive failure and cardiac irregularity.

The electrocardiographic findings in addition to the fibrillation showed changes in the QRS complexes and T waves dependent upon the associated myocardial disease. Ventricular premature beats were found in 16 cases, occasionally occurring frequently and not due to medication. Runs of auricular flutter in one or more leads was present at some time in five cases. In one case, a colored female, 46 years of age with a toxic adenoma and auricular fibrillation with congestive failure, who was treated by roentgen ray therapy to the thyroid, and digitalis, there was found during a period when sinus rhythm was restored, sino-auricular block, which persisted for a few days.

Auricular fibrillation is usually considered, and quite properly so, as a serious complication. Certainly its development with organic heart disease adds to the gravity of the case. White[1] gives two to three years as the average duration and Willius, in a group of 173 fatal cases, found the average duration one year and three months. Stroud, Laplace and Reisinger,[3] in a review of a series of cases, found that in the rheumatic and arteriosclerotic group, the average duration was two and one half years, among those now deceased and three and one half years among those still living. In the group with no apparent etiologic nor clinically demonstrable cause for their auricular fibrillation, the average duration of life was two to three and one half years. In our group the duration of symptoms for the entire group was 20 months, in those that expired 15 months, and in those still living, 22½ months. Apparently auricular fibrillation alone offers very little indication as to life expectancy since it depends upon the degree of competence of the myocardium. This is exemplified by a study of a series of cases of auricular fibrillation and flutter by Orgain, Wolfe and White,[6] in whom there was no demonstrable evidence of organic heart disease. In their conclusions they find that the prognosis for life and for maintenance of adequate cardiac function is good and that the outlook for future improvement manifested by a decrease in frequency or a complete cessation of paroxysms is frequently good.

In this group of 37 cases, nine expired in the hospital: syphilitic two, rheumatic two, arteriosclerotic and hypertensive three, thyroid one and pregnancy one. Of these only one death, that following pregnancy, was perhaps primarily due to the auricular fibrillation. She expired suddenly probably due to an embolus. The remaining eight cases all had evidence of myocardial disease, hypertrophy, valvular disease or coronary sclerosis. Autopsy was performed on four cases, in three of whom the findings were those usually associated with congestive failure, while in the other mesenteric infarction with hypostatic pneumonia was present. Of the five on whom autopsy was not performed, one died suddenly as mentioned above, but the other four expired as usual in congestive failure. The duration of symptoms in the nine cases, varied from three weeks to five years, averaging 15 months.

The two cases of auricular fibrillation occurring in syphilitic heart disease were both colored males. One was 42 years of age and had been in the hospital on two occassions for congestive failure and was fibrillating on the last admission. He expired and at autopsy an aortic aneurysm, syphilitic aortitis with dilatation of the annulus fibrosis, aortic insufficiency, and slight hypertrophy of the heart were found. The immediate cause of death was congestive heart falure and multiple pulmonary infarcts. The second case was 27 years of age and had been admitted to the hospital on three occassions. He apparently developed auricular fibrillation during the latter part of his last admission. He also expired and autopsy showed marked hypertrophy and dilatation of the heart secondary to aortic insufficiency and syphilis of the aortic valve with destruction of one of the cusps. The relative infrequency of auricular fibrillation in syphilitic heart disease has been frequently noted and here, where we encounter syphilitic heart disease so frequently, it is still relatively rare.

McEachern and Baker[5] have pointed out that in such cases as these, digitalis may have caused the fibrillation. Both of these patients had been in the hospital for two or three months, and on small doses of digitalis during that time. One was definitely fibrillating on admission, but the other apparently developed fibrillation while on the wards and may have been due to digitalis therapy.

## TREATMENT

The aim of treatment in auricular fibrillation is the prompt restitution of the maximal degree of circulatory efficiency. Since auricular fibrillation may occur in different types of heart disease, in congestive failure or not, different types of treatment may be indicated. Formerly our one drug was digitalis, but in 1918 Frey introduced quinidine therapy as a treatment of auricular fibrillation. Like many new drugs, it was received with enthusiasm but time has not increased that enthusiasm.

The beneficial effect of quinidine therapy is due entirely to the conversion of auricular fibrillation to regular sinus rhythm. This is due to its direct action on the heart muscle, slowing conduction and lengthening the refractory period. It is when the latter, lengthening of the refractory period, predominates that regular sinus rhythm is restored. Digitalis exerts its beneficial action in auricular fibrillation by slowing conduction both in the muscle and the conduction track, but largely in the latter. With slowing of conduction in the A. V. node, fewer stimuli are allowed through and as a result, the ventricular rate is reduced.

In addition, there is the direct effect on the heart muscle tone and completeness of contraction, and thereby increasing cardiac efficiency and relieving congestive failure.

As experience with the use of quinidine has increased, its definite limitations have become more fully appreciated. It has been shown that quinidine is successful in establishing sinus rhythm in only about 65 per cent of selected cases and that the duration of the established sinus rhythm even with continuation of treatment is about one and a half years. More important still is the observation that the average duration of life following the onset of auricular fibrillation was only slightly over a year longer than that of the patients who were considered unsatisfactory for quinidine therapy and exactly the same as that of the patients who had received quinidine but without the restoration of normal sinus rhythm.

Apparently the irregularity per se, does not cause a great deal of circulatory embarrassment. According to Lewis,[9] it is the uncontrolled state of the heart in exercise which constitutes the most serious feature of fibrillation, but the same hearts with sinus rhythm show a similiar high ventricular rate after exercise with a slow or delayed return to normal. Generally, these hearts function best with their fibrillation controlled by digitalis.

Levine[4] has pointed out that there are certain untoward effects following quinidine therapy. Quinidine intoxication may occur and the induction of heart failure has been attributed to quinidine in a few cases, apparently due to the accelerated ventricular rate. There have also been reported cases of sudden and temporary collapse with loss of consciousness and failure of respiration and even sudden death. According to Levine,[4] the explanations offered for this phenomenon are ventricular fibrillation, cardiac asystole due to failure of the S. A. node to function when fibrillation ceases, heart block and marked vagal stimulation. The occurrence of embolism following the restoration of sinus rhythm has been stressed. Auricular fibrillation predisposes to the formation of clots in the auricular and the return to normal auricular action favors the detachment of such clots.

In this group of cases, quinidine therapy was tried in 14 cases and was successful in restoring sinus rhythm in only two. The two cases in which sinus rhythm was restored were due to thyroid disease and alcohol, probably the only cases distinctly suitable for quinidine therapy. The thyroid was a toxic adenoma in a woman 50 years of age who continued to fibrillate after partial thyroidectomy. Quinidine sulphate, 30 grams a day promptly restored sinus rhythm. The second case was in a white male 52 years of age who had paroxysmal auricular fibrillation following alcoholic debauches. He had been on a spree for several days prior to admission and was admitted with auricular fibrillation and malaria. Quinine therapy for malaria had no effect on the fibrillation, which was controlled by digitalis. After the malaria had been controlled he was given quinidine which promptly restored sinus rhythm. Neither of these two patients had any appreciable amount of myocardial disease but the other twelve cases had various degrees of hypertrophy and myocardial damage. Therapy in these cases was administered on different services but was generally adequate and usually followed digitalization. In one of these cases, a white male, 45 years of age with arteriosclerotic and hypertensive heart disease, sinus rhythm was restored for a few days but under continued treatment reverted to fibrillation. No effect whatever was noted in the remaining cases. These cases on whom quinidine was unsuccessful and the others were benefitted by digitalis therapy.

It has been pointed out by McEachern and Baker, that digitalis may produce auricular fibrillation particularly in patients with advanced heart failure. None of these cases of fibrillation were due definitely to digitalis medication and the only toxic effect of digitalis noted was the appearance of extrasystoles and coupled rhythm. Coupled rhythm developed in one case, a white female, 28 years of age, with rheumatic heart disease who was taking a daily dose of three grains of digitalis, but promptly disappeared on stopping the drug.

This group of cases is entirely too small and inadequate to judge of the relative merits of digitalis and quinidine in auricular fibrillation, but partly from it and largely from the experience of others we can reach some conclusion. Concerning quinidine it can be said that it is indicated in a relatively small group, paroxysmal fibrillation in order to avoid the attacks, in thyroid cases that continue to fibrillate after adequate treatment of the thyroid gland, those cases due to definite toxic factors that continue to fibrillate after removal of the toxic agent, and in those cases of fibrillation in which the heart is apparently normal. Quinidine may be tried in some cases of the chronic type controlled by digitalis whose chief complaint is intractable palpitation. Certainly in chronic fibrillation when there is failure of compensation, damaged hearts with valvular disease, and hypertension, digitalis is the drug of choice.

## CONCLUSIONS

Auricular fibrillation occurs frequently and most often in arteriosclerotic-hypertensive and rheumatic heart disease.

It is due to no particular type of pathology.

Life expectancy after developing fibrillation is relatively short.

Quinidine is indicated in a limited number of cases.

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### DISCUSSION

Dr. W. S. Kerlin (Shreveport): You will remember that in the first paragraphs of Dr. Hargrove's paper he mentined the fact that the series of cases he has reported was observed in Charity Hospital Shreveport and that the average duration of life was about 22 months. That was the prognosis for that series of cases, however it does not necessarily mean that the prognosis is the same in private practice, dealing with private patients. However, as brought out, Dr. White and others have reported an average duration of five or six years and that auricular fibrillation should always be considerd a very serious disease. However, there are a number of cases reported that have lived for years, and Dr. Hargrove reported Dr. Stroud as saying that it was not the irregularity that denoted the weakness of the heart muscle, but the amount of rest that patient gets during the course of the disease in the lessening in frequency or cessation of the paroxysms. This is illustrated by a case I observed in 1921, an elderly lady, 65 years of age, when first I saw her. She had at this time marked decompensation of the heart and said her heart had been irregular for 15 years prior to 1921, and that she had decompensated at intervals and was in an extreme state of decompensation. She is 80 years of age today. I have observed her frequently. She has obtained the proper rest, and I believe in these cases where decompensation is likely to occur, digitalis does good, that is in maintenance doses of a grain and a half a day, it obviously prolongs those patients' lives and makes them more comfortable. Whenever this patient would cease taking digitalis she would immediately decompensate, and by resuming digitalis at my suggestion it made her very comfortable. I do believe that digitalis in maintenance doses should be kept up, especially in chronic fibrillation cases. Just in the last year I saw a typical facial paralysis and I thought at the time it might be due to a slow leak; later I felt it was due to a cerebral embolism. That is not an uncommon complication in cases with a tendency to congestive heart failure. This patient is getting along in years and is still in comparative comfort and says he is going to live for a much longer period of time.

Dr. Edgar Hull (New Orleans): When Dr. Hargrove closes his discussion I should like for him to indicate the etiologies in his miscellaneous group. Usually auricular fibrillation is associated with coronary sclerosis, thyrotoxicosis and mitral stenosis, and in the Heart Station in Charity Hospital, practically all fibrillations fall into those three groups. In the wards of the hospital, however, we frequently see clinical fibrillation which is transitory, which lasts only a few hours or a day or two, and which clears up. We see this in various toxic conditions, particularly in pneumonias. I saw one the other day in a patient with obstructive jaundice, another a few weeks past in an elderly lady with bronchitis. Since these fibrillations disappear spontaneously, we digitalize only if the heart is failing or if the rate is exceedingly rapid, and never give quinidine to these patients.

Dr. John H. Musser (New Orleans): Just a word, as this is to a certain degree an experience meeting.

I have had a patient under observation for 25 years who has had fibrillation steadily all that time. Bear in mind, however, that is slow fibrillation, between 70 and 80, not the delirium cordis of the old days.

Dr. M. D. Hargrove (In conclusion): I think Dr. Kerlin's point about the prognosis of this group of cases, where they are found, is of considerable importance. All came out of Charity Hospital (Shreveport) and naturally, the conclusions would not apply so well in patients treated in private practice.

We see the cases, the particularly slow types that Dr. Musser mentioned, treated for years.

Dr. Herold will remember the engineer on the L. & A. railroad who had been fibrillating for years.

As to the miscellaneous group Dr. Hull inquired about: one patient's condition was due to drinking of alcohol; one developed it during pneumonia and reverted to regular sinus rhythm and the other might be considered post-partal of toxic heart disease. No definite etiologic diagnosis was made.

# CORONARY OCCLUSION*

MELVILLE W. HUNTER, M. D.
MONROE

In 1910, two Russians, Obratzow and Strascheko, associated the clinical syndrome, as known now, with coronary occlusion. It was not until 1925 that either the British or American physicians began to investigate the subject to any extent. So, for practical purposes, our knowledge of this condition dates back less than eleven years.

### PREDISPOSING FACTORS

The disease is primarily one of the arteries, that is sclerosis of the coronary arteries. Frequently it is associated with generalized arteriosclerosis and hypertension, but in many instances the changes seem to be in the coronary vessels alone. It is in this latter type that the attack is unexpected by both the physician and patient. Since the disease occurs with greatest frequency in the business man and not the laborer, it is evident that mental stress and strain, as well as the constitutional make-up of the individual, play an important part in precipitating attacks.

Diabetes is said to be a predisposing cause, 7 per cent of diabetics are said to die of coronary occlusion.

Syphilis plays only a minor part as a causation factor of true occlusion. It is extremely rare that syphilitic aortitis of the coronary vessels is noted.

Emboli may strike the coronary vessels as they do any other vessels.

Tobacco is said by some to predispose to coronary sclerosis. This is doubted by many. However, the use of tobacco in one suffering with coronary sclerosis frequently gives the angina pain.

Alcohol has been blamed by some, but no satisfactory proof has been given as to the part it plays in sclerosing the coronary vessels. Coronary occlusion predominates in the male. In Levin's series of 145 cases, 111 or 60 per cent were males. Parkerson reports 93 per cent males. In my 32 cases, 25 or 79 per cent were males. Age incidence: In Levin's 145 cases, the average age was 57.8, only 3 under 50. In my 32 cases, average age was 54.5. Ten cases occurred between 40 and 50, 12 cases between 50 and 60, 9 cases between 60 and 70, 1 patient was 82 years old.

### PATHOLOGIC CHANGES

When the blood vessel is suddenly blocked the area of myocardium supplied by that vessel is set into a state of disturbed chemical balance and becomes more irritable. This irritable infarcted area is the site of origin of ectopic beats. Often the foci are multiple. Depending on the number and distribution of these foci depends the probability of ventricular fibrillation developing. Ventricular fibrillation usually proves fatal in a short time. Depending upon the size of the branch occluded will be the size of the area of necrosis. The microscopic and macroscopic picture of this area will be that of a sterile necrosis in any tissue, that is a sterile gangrene or sterile abscess which will heal as elsewhere with swelling, softening, sloughing and absorption, then granulation tissue and finally scar tissue. There is no need in this short paper to discuss the most frequent locations of the occlusions or infarcts or by what means the scar tissue receives its blood supply.

The point I wish to bring out forcefully is that immediately following the infarction the tissue is stronger that it will be 24 hours later. After the relief of the acute pain and shock, if the patient is seen at his home or out of town, the physician should make his decision whether or not to make a hospital or home case of the patient. I believe that at this time the patient can be moved in an ambulance even 25 or 30 miles with little or no mental or physical strain, and with less chance of causing cardiac dilatation or rupture of necrosing area, than at any time within the next eight or ten days.

### SYMPTOMATOLOGY

We are all familiar with the clinical picture of acute coronary occlusion presenting a history of substernal pain or oppression, after exercise or eating, the pain radiating to the neck or down the left or both arms. Such a history is usually obtained in most cases seen in the acute attack. The acute attack presents a patient in agony and frequently in collapse or shock, complaining of violent pain in the precardiac region, said pain radiating to the neck or down left or both arms. This pain is not relieved by the nitrites. The blood pressure usually shows a marked drop from that ordinarily carried by the patient. The pulse is slow and in 40 per cent of the cases is irregular, the irregularity being either ectopics or block. In 24 hours there is a rise in temperature, usually 99 to 100°, and the leukocyte count rises to 10,000 or 15,000 with an increase in the polys. A friction rub in heard over the heart in many cases in 48 hours and disappears in 72 hours. This is briefly the classical case.

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Let us think a bit of the atypical case. The cases of so-called acute indigestion of middle life, or past middle life, are now not considerd atypical because of their frequency. These cases are usually diagnosed as coronary occlusion even by those with little experience with the disease. I wish to cite two cases which I have seen in the last few years which exemplify the atypical phases of the disease.

### CASE REPORTS

Case 1. May 26, 1934, I was called at 5 a. m. to see a white male, aged 50 years, occupation planter. He was out on the front porch gasping for breath, blood pressure 70/70 and in a state of shock, giving a history of having been an excessive eater with indigestion after eating for the past 20 years. For the past week he had had rather severe attacks of indigestion, necessitating morphine and rest in bed. His physician, suspicious of peptic ulcer, sent him to Monroe for gastro-intestinal roentgen rays, which were made May 24 and 25. These pictures demonstrated a well defined duodenal ulcer. On the night of May 25, his physician had given him large doses of analgesics with little relief. Coronary occlusion was the diagnosis and he was hospitalized, the electrocardiogram showing the classical curve of occlusion. Thus we see two separate conditions which may give a similar clinical picture both being present at the same time.

Case 2. White male, aged 42 years, occupation, civil engineer, was first seen by me November 2, 1932. He had been in perfect health and had gone hunting, walking five miles or more. On returning to town he tried to start his car. The starter did not work, so he cranked the car and drove home. In about fifteen minutes he developed a severe pain in the right shoulder, right arm and right and left pectoral regions. He felt exhausted. His physician gave him one-quarter grain of morphine, but he did not get any better. I saw him with his local physician. His blood pressure was 140/90, previons reading being 160/90. The heart was regular and no abnormalities noted; temperature was normal. The question of coronary occlusion was considered but was almost ruled out. We decided to await further developments, treatment being symptomatic. Throughout the night the pain persisted, and he needed morphine on three occasions. The next morning his temperature was 99.2; the heart rate was 76, irregular, apparently ectopic beats, and blood pressure was 100/70. It was evident then that we were dealing with coronary occlusion. An electrocardiogram verified the diagnosis.

Each month the current literature gives histories of atypical cases, many resembling the acute abdomen. A careful history, a little observation and the electrocardiogram, will prevent many errors. We have occasional cases of occlusion with dyspnea, or cardiac edema without pain. These are rare but should be kept in mind. The diagnosis is made by the electrocardiogram or not at all.

### TREATMENT

From the therapeutic standpoint, acute coronary occlusion can be divided into three distinct stages: First, the stage of onset or shock in which the symptoms of pain, prostration and shock are present. This covers the first 24 hours; second, the intermediate stage, lasting from the second day to the fourteenth day, during which time there are the signs and symptoms of necrosing heart muscle; third, the stage of convalescence extending from the fourteenth day to four or eight months. This is the stage of healing or recovery.

Let us consider the treatment of the first stage. In this stage the primary object is to relieve pain and shock. Morphine in large doses often two to four times the usual dose, is indicated for the relief of pain and mental anxiety and to produce rest. Morphine in large doses not only relieves pain but is a cardiac sedative. Next in importance is the control of shock if present. This is taken care of in the usual manner of combatting shock, with one exception, the head in place of being lowered is often raised and the patient elevated upon a back rest. It is at this point, that is, after the relief of pain and immediate shock, that it should be decided whether or not the case should be treated at home or hospitalized, for bearing in mind the pathology it is evident that the infarcted area is stronger in the first twenty-four hours than a few days later and, likewise, following the relief of severe pain the patient presents no opposition or anxiety in being hospitalized. It has been my policy to recommend hospitalization, even if the patient has to travel 25 or 35 miles. In my experience the hospitalized cases have done better than those treated at home. After the initial relief, the following plan has proved of value. Blood pressure readings are made every one or two hours for the first 48 hours and a marked fall in blood pressure, that is a systolic pressure of 80 or below, or fall in pulse pressure, that is a pulse pressure 10 mm. of mercury or less, should be treated by 25 to 50 c.c. of 50 per cent glucose by vein. This is repeated every two to four hours as indicated. I believe this is the most valuable cardiac stimulant for this type of case. On a number of occasions I have found the blood pressure to vary markedly in a few minutes and those cases which did not respond to the 50 per cent glucose did not terminate favorably. The residents at the Sanitarium and I have followed this routine with gratifying results and I have lost a few patients treated in the homes and in the country in whom this routine of frequent blood pressure readings had not been followed. Other stimulants, such as adrenalin, caffeine, sodium benzoate, coramine, or camphor in oil, have all proved of value at times. Care must be taken not to raise the blood pressure too high, as we then favor rupture of the heart. Digitalis is not indicated except for myocardial failure, which is rare. Digitalis increases the irritability of the ventricular musculature and increases the danger of ventricular fibrillation. Quinidine is recommended highly by Musser as a prophylaxis for ventricular fibrillations. It should be started in the first twelve hours. Euphyllin, metaphyllin, aminophyllin theominal, or one of this group, should be started within a day or two and kept up indefinitely.

The intermediate stage, from 24 hours to 14 days, usually finds the patient slowly improving, the pain being relieved. Nausea seems to be the greatest obstacle to be overcome. Gastric lavage must be avoided because of the straining. The usual gastric sedative takes care of the condition. Alcoholic drinks have proved of value in these cases.

The diet in the first 24 hours is usually nothing but liquids, but is slowly increased to semi-solid and finally a full diet. The use of oxygen, preferably administered by means of the oxygen tent, has at times proved life saving in the relief of anoxemia.

The bladder must be watched for distension and catheterization is frequently necessary and is preferable to straining. Let us be doubly careful in our sterilization of catheters and technic, as we are frequently dealing with patients who are suffering with a chronic prostatitis and in a few of my cases acute cystitis with chills and temperature 105° followed catheterization.

In reference to the care of the bowels let me state that I have seen some cases of coronary occlusion die, I believe, the purgative route. The patient having so-called acute indigestion, the family or neighbors gave him large doses of calomel, oils and salts, thereby producing frequent stools, the patient in most cases getting out of bed to use a slop jar. (We in the country, that is, outside of New Orleans, encounter this overpurgation frequently and are severely criticized if strong purgatives are not given at the onset of any malady.)

### THE STAGE OF CONVALESCENCE

From the fifteenth day on, the patient feels better and resents the enforced bed rest. He begs to be allowed to sit up and move about the room. He is advised to remain in bed another month and then gradually increasing his exercise. I do not think it advisable to let them drive their cars for six or eight months. A scarred and crippled heart is entitled to consideration and the cooperation of the patient should be obtained by a frank statement of the reasons for an altered mode of life. He must face his limitations and live with them. The onset of the earliest signs of cardiac inadequacy, such as increased tendency to shortness of breath or cardiac pain on effort, must be accepted as an indication that the myocardium is being overtaxed. The return to normal life must be gradual and carefully supervised.

### PROGNOSIS

Connor reports in 109 cases that 93 per cent were in good health at the end of 2 months; 21 per cent were well at the end of 5 years; 4 per cent were well at the end of 10 years; and 1 per cent well in 17 years.

In White's series of cases 21 per cent remained well in 5 years. It has been stated that the average duration of life in coronary occlusion is 2.4 years, 50 per cent dying in first attack, leaving 4.8 years as average for those surviving the first attack. The mortality in the second attack is 60 per cent or more.

In my 32 cases 27 per cent died within 72 hours; 54 per cent were dead at the end of two years.

### CAUSE OF DEATH

1. Shock.
2. Ventricular fibrillation.
3. Cardiac rupture.
4. Cardiac aneurysm with rupture.
5. Second or subsequent occlusion.
6. Myocardial failure.

### CONCLUSION

Acute coronary occlusion is more prevalent now, or it is more readily recognized than in the past. Frequent blood pressure readings with administration of fifty per cent glucose intravenously in cases of failing pressure, or small pulse pressure, have reduced the immediate mortality. Severe purgation is to be avoided. There is less danger of moving a patient in the first twenty-four hours than in the next eight days.

### DISCUSSION

Dr. M. W. Miller (New Orleans): There is very little I can add to the subject matter within the scope of Dr. Hunter's paper, with the exception that it might be said in regard to diagnosis, that since the advent of the electrocardiograph more cases of coronary occlusion are being recorded and discovered than were diagnosed prior to the advent of this instrument. Oftentimes, in the minor cases, at least the cases in which the occlusion is not so large and the vessel occluded supplies a smaller amount of muscular tissue, repeated electrocardiographic studies must be made to establish completely the diagnosis. At times, the fourth lead is of value in this determination.

With regard to the treatment of the disease, there is little that I can add. The fundamental principle of the treatment of coronary occlusion is rest. I believe Dr. Hunter is right in his contention that during the first 24 to 48 hours following the accident, the cardiac musculature is stronger than it is for the next few days or even weeks, and if patients must be moved, they should be moved at this particular period, assuming that shock has been successfully combatted.

The management of these individuals in what Dr. Hunter styles the third stage of treatment is oftentimes problematic. He states, and correctly so, that the incidence of the disease is greater in persons along the higher walks of life, the professional man, men who are subject to considerable mental stress and strain, and in spite of their physician's insistence along the rest line it is difficult to have them consider the seriousness of the heart condition. These individuals fail to obtain adequate rest which we insist they have. In these particular circumstances, it is wise to remember that you are treating a patient with a disease rather than a disease in a patient. Each one requires a certain amount of study and observation, and your success with a particular patient is largely due to the accuracy of your knowledge of the patient's mental make-up.

The sedimentation test perhaps offers a field for determining just how long these individuals should be kept in bed after the accident occurs. We say six to eight weeks. Some of the minor vessels being occluded perhaps not even six to eight weeks is required, while six to eight weeks in others is not sufficient.

As our knowledge of coronary occlusion grows we realize that even some of the larger vessels may be completely occluded and yet recovery occur, recovery to such an extent that the person so diseased is able to follow out his normal habits of life to a large extent, and at least earn a livelihood. The management of these individuals when we have permitted them to return to work must follow under very careful supervision.

Dr. John H. Musser (New Orleans): I quite agree with Dr. Hunter in his concept that speaking from the point of view of the heart, probably the best time we can move the patient, if you have to move him, is almost immediately but the problem is that of a patient who often is in a state of rather grave and severe shock. I think probably that not the first 24 hours but the 24 to 48 hours later would be the best time to move the patient.

Dr. Hunter stressed the possible occurrence of ventricular fibrillation and that when this occurs death is going to take place. In order to obviate the danger of ventricular fibrillation quinidine has been suggested to be started immediately and at once. A point that Dr. Hunter did not dwell on is the prevention of coronary occlusion. Undoubtedly there is an inherited tendency of that individual who is going to have coronary occlusion to have a rather peculiar coronary system. Because of the fact this disease is always known as the "doctor's disease," and because of the fact of the family history in individuals who have begun to have some slight precordial distress or discomfort, or even in those individuals who have not had premonitory signs, but are around 55 years of age, I think it is advisable to start them on some of these preparations which increase the size of the coronary bed. Keep those people on one or another of the xanthines, I prefer theocalcium, and keep them on the preparation for not a week nor two weeks, but a good many years. I have two or three of my dear friends who have a bad reputation in so far as family history goes, following that procedure. It is difficult to convince the lay individual to start taking medicine for the rest of his life. Certainly, the physician who knows what will happen should be convinced that taking theocalcium may obviate future occlusion.

Dr. Willard R. Wirth (New Orleans): This is an interesting presentation of the subject of coronary occlusion which is very timely, because as Dr. Hunter said, the condition is either apparently or really increasing, both in the number of cases seen and also, apparently at least, in individuals younger than the usual stated age period. Dr. Hunter stated some of his cases occurred between the ages of 40 and 50 years, and I have had the unfortunate experience of seeing typical cases in individuals under 40 years of age.

The diagnosis of the typical case, as Dr. Hunter said, is without very much difficulty, and in those cases the electrocardiogram is not an absolute necessity, simply an additional means of absolutely confirming the diagnosis. However, in those other atypical cases, of which we see many, then the electrocardiogram becomes a very important aid in the diagnosis. It must always be considered simply an aid and it never will and never was intended to supplant any of the other means of observation. Diagnosis of any coronary occlusion should be based first upon the history, then physical examination coupled with the electrocardiogram, and the other associated signs and symptoms such as fall of blood presure, or leukocytosis. In addition to the diagnosis of these atypical cases, the electrocardiogram in any case becomes of importance not only in the diagnosis but in the prognosis and the handling of the case.

As to prognosis, it has been shown there are two large types of coronary occlusion as to the position of the infarcts and they are the so-called anterior type which involves the anterior descending branch of the left coronary and the posterior, which involves the right coronary or circumflex branch of the left. It has been suggested that the prognosis in the posterior type is much less grave than the prognosis in the cases of the anterior type. When we have an anterior type of occlusion, typical electrocardiographically, we must regard the problem as much more serious clinically, probably twice as serious, as the posterior type.

In the management of the case the electrocardiogram may be of additional assistance in the attempt to evaluate and determine the time at which the patient may be allowed to get up, which is difficult to do. It is true that the typical anterior type should be kept in bed for at least two months, and in many cases probably longer. Certainly, it is true we should not allow the patient to get up as long as the electrocardiogram shows progressive changes, but should wait at least until the electrocardiogram is stationary, realizing always that these changes usually precede by several weeks the healing of the myocardium.

So far as the therapy of the condition is concerned, Dr. Musser's suggestion of the use of quinidine is important in the prophylaxis of ventricular fibrillation. Whether it should be given in every case of coronary occlusion is debatable. Certainly in those cases which show multiple or frequent ventricular premature contractions the use of quinidine is indicated but perhaps not in those that have regular rhythm.

Dr. M. W. Hunter (In conclusion): In reference to moving the patient in the first 48 to 72 hours, I have no idea of moving a patient in a profound state of shock, but administer morphine, narcotize well and then move. We are not speaking of cases close in town like New Orleans. We have to go five or six miles. We have to see that these patients do get adequate attention and I believe that after the immediate relief of shock, with the patient fully narcotized, it does make the ideal time to hospitalize him if we have to do so.

# FACTORS INFLUENCING MORBIDITY AND MORTALITY IN BENIGN TERTIAN AND ESTIVO-AUTUMNAL MALARIA*

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and
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Studies by malariologists have resulted in the universal acceptance of the existence of at least three distinct human species of malaria parasites. One of these, Plasmodium malariae, the causative agent of quartan malaria, is quite rare, and to us is neither a public health problem of moment, nor a suitable topic for investigation. We will therefore concern ourselves with the two types of malaria which are ever present in our southern United States.

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The clinical points of differentiation between tertian and estivo-autumnal malaria have become obscured in the minds of many physicians. The dictum advocated by Craig[1] many years ago has not received the attention it should—"all estivo-autumnal fevers should be classed as severe forms. Pernicious malarial fevers are caused by estivo-autumnal parasites, and every case showing the presence in the blood of such parasites should be considered as serious in nature". Perhaps it would be better if the term "malignant tertian" were accorded wider clinical usage in referring to estivo-autumnal infections. More frequent diagnosis of the type of infection by hematologic studies in suspected cases should help to curtail the morbidity and mortality of this disease.

Plasmodium vivax infections are characterized symptomatically by the regularity of the paroxysms and by no alarming clinical manifestations. The characteristic rigors, however, are accompanied by considerable temperature elevation. Not infrequently patients recognize the nature of their infection and have already taken preparations containing quinine before seeking medical advice. This infection may act as a contributory cause of death, but the mortality in uncomplicated cases is practically nil.

Estivo-autumnal, or malignant tertian malaria, is characterized by its diversified and pernicious manifestations. The patient is usually quite ill. Gastrointestinal symptoms often tend to produce puzzling pictures for differential diagnosis, while cerebral symptoms demand emergency therapeutic measures. The mortality of malaria is synonymous with that of estivo-autumnal infections as exemplified by the report of Kelley and Sydenstricker[2]. There were 51 deaths in their series of 814 malaria patients; 47 of those resulted from pernicious forms of estivo-autumnal malaria.

Plasmodium falciparum and P. vivax infections are therefore so dissimilar, that they behave like two separate diseases. Several factors relating to the pathogenesis of malaria aid in explaining these differences.

First, let us consider the number of parasites in the blood stream as a measure of the severity of the infection. Stained smears reveal unquestioned differences between benign tertian infections where parasites are scanty by comparison with untreated estivo-autumnal malaria. There are comparatively few observations, however, wherein actual parasite counts have been recorded. Ross and Thompson[3] state that 200-500 P. vivax and 600-1500 P. falciparum per cubic millimeter are the minimal numbers of parasites necessary to produce fever. Other reports concern themselves with the significance of parasite counts in estivo-autumnal malarial infections. Borels and Levan-an[4] find that when the parasite count approaches 1000 in twenty oil fields in a thick film the prognosis is grave. Kelley and Sydenstricker mention three factors which decide the outcome of pernicious malaria with cerebral manifestations; the degree of coma, the duration of symptoms prior to treatment, and the numbers of parasites in the blood. Thirty-three of 45 of their patients with less than 10 parasites per oil field recovered, while 12 who showed 20-75 plasmodia per field died. James[5] has found that estivo-autumnal cases showing 15 per cent infection of erythrocytes were invariably fatal, while those with 5-10 per cent infected corpuscles were serious. Ross[6], however, inclines to the belief that the degree of morbidity in these cases cannot be adequately determined by the number of parasites in the peripheral circulation.

In our own series[7], in which repeated observations were made on 20 malaria cases, it was found that the parasite count in the estivo-autumnal variety was double that of the tertian malaria cases. The figures do not give a true picture because we excluded critically ill estivo-autumnal cases as well as very mild benign tertian infections.

Scarcity of available material makes it impossible at this time to visualize the extent of visceral infection in tertian malaria. The older tertian parasites certainly show little tendency to remain in the internal capillaries, because they frequently appear on blood films. We also find that the parasite count tends to fluctuate only moderately during the 48 hour cycle of development. Although tertian parasites have been found in bone marrow smears and splenic punctures, we feel that the extent of the infection in this type of malaria is portrayed by the number of infected erythrocytes in the circulating blood. On the other hand, numerous pathologic studies of fatal estivo-autumnal cases have demonstrated conclusively that P. falciparum tends to remain in the internal organs. Mature parasites of this type are rarely found in the peripheral circulation and the parasite counts may undergo wide fluctuation.

In addition to the higher parasite count in the peripheral circulation, estivo-autumnal malaria is always associated with abundant parasite growth in the internal organs. The total number of parasites in the body must therefore be greater. We feel that the severity of the symptoms and the degree of toxicity bear a direct relationship to this factor. Stitt[8] proposes that this must be brought about either by the infection and destruction of large numbers of erythrocytes or by the liberation of a large amount of toxic material by disintegrating merocytes. Certain symptoms of the pernicious forms of estivo-autumnal malaria are in addition due to visceral circulatory disturbances induced by the growth of mature parasites which singly or by agglutination produce capillary block. Others believe that blockage occurs because the reticulo-endothelial cells become distended with phagocytized pigment. The milder symptomatology of benign tertian infections may be attributed to the smaller numbers of invading plasmodia.

The reason for this prolific multiplication of P. falciparum in its human host has not been definitely explained. That the estivo-autumnal parasite is capable of dividing by amitosis or fission in the ring stage was proposed many years ago by Grassi and Felletti[9]. Multiple infection of a single erythrocyte, as well as rings with several chromatin dots, are frequently encountered during the examination of estivo-autumnal smears. Hingst[10] recently stimulated further interest in this question by describing morphologic appearances of parasites, which he submits as proof of this theory. Each trophozoite in estivo-autumnal malaria therefore may develop and reproduce by fission in the ring stage, thus explaining the large number of segmenters seen at times in both cultures and the viscera of the human host. The presence of a large number of segments in the rosette is one means by which an increase in number of parasites with each successive generation is obtained .

Eaton[11] first directed attention to the susceptibility of immature erythrocytes to infection in benign tertian malaria. We felt that a comparative study of the two most common types of malaria might be informative. A series of 20 benign tertian and estivo-autumnal patients was studied[7]. Reticulocyte and erythrocyte counts at various stages during the cycle enabled us to calculate and compare by the indirect method the number of reticulocytes, parasites and infected reticulocytes per cubic millimeter of blood.

Tertian malaria preparations revealed no evidence of a reticular network in parasitized cells which were older than 12 hours. The estivo-autumnal cases, because of irregular growth of parasites, showed parasitized reticulocytes at any stage of the cycle. In benign tertian malaria, reticulocytes containing parasites constituted a considerable proportion of the total infected red blood cells. Immature red cells were infected far out of proportion to their frequency in the circulation. In estivo-autumnal infections, reticulocytes were seldom infected, slightly less in fact than one would expect from the ratio which existed between reticulocytes and mature erythrocytes. From these studies, it seems plausible to suppose that P. vivax selects reticulocytes for its growth by preference. It is possible that only reticulocytes are infected by these merozoites. P. falciparum, the parasite of estivo-autumnal malaria, may enter and develop in any type of available erythrocyte. The number of parasites in the peripheral circulation in tertian infections is therefore limited by the number of reticulocytes available. This factor assumes more importance when we consider that the number of immature red cells in benign tertian infections does not increase in spite of the fact that destruction of these cells by parasites would seem to call for their replacement. Estivo-autumnal infections are associated with higher parasite counts because mature and immature erythrocytes are probably infected with equal facility.

The degree of phagocytosis of liberated merozoites is still another unsolved problem. The importance of this means of body defense against invasion by malarial parasites was first stressed by Metchnikoff[12]. He believed this to be an important factor responsible for spontaneous recovery in malaria. It is not possible at this time to define the role which this phenomenon may play in limiting the number of parasites in the body, especially in benign tertian infections.

These behavior differences in the final analysis must represent innate variations in virulence peculiar to each species of parasite. Knowles and White [13] propose a theory which in many respects is compatible with our knowledge of this disease. They believe that from an evolutionary standpoint, P. vivax appeared first as a parasite affecting man and has adapted itself well to environmental conditions. P. falciparum appeared later and has not yet become well adapted to parasitic life in its new host. This is evidenced by the fact that its range is limited, its symptoms are severe, and spontaneous cure is frequently encountered.

### SUMMARY AND CONCLUSIONS

Benign tertian infections are characterized by a mild clinical course, while estivo-autumnal malaria is serious, irrespective of the presence of pernicious manifestations, which are responsible for the fatalities caused by this disease.

Certain symptoms of pernicious malaria are induced by capillary block because P. falciparum tends to grow in the viscera. It is our belief, however, that the mildness or severity of the clinical picture in tertian and estivo-autumnal infections is proportional to the number of parasites developing in the human host.

This increased virulence and prolific growth of P. falciparum results from several factors:

1. Trophozoites probably divide by fission early in their cycle of development.
2. Large numbers of merozoites are produced by the fully grown parasites.
3. The invading plasmodia of this species are probably capable of developing in either mature or reticulated erythrocytes.

The number of parasites in the body in benign tertian infections is limited, because P. vivax invades and matures in reticulocytes in preference to mature red cells. Opportunities for the infection of erythrocytes are limited by the small number of reticulocytes available. Phagocytosis of merozoites is possibly an important means of reducing the parasite count in benign tertian malaria.

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### DISCUSSION

Dr. John A. Lanford (New Orleans): There is very little I can add to the summary of Dr. Shushan and Dr. Blitz' paper, but it would be well to emphasize certain features that they have brought out. The question of malaria is still an important one with use, but for some reason there has been very little discussion of it at medical meetings in recent years. However with the increase of malaria cases in the State it is right to bring this topic under discussion with certain other investigative work that has been carried on and reported in part by Dr. Shushan's work here.

Dr. Shushan has shown by very laborious investigative procedure, which he has only touched on in the paper, that the number of these organisms and the behaviour of the two types are quite distinct and from that investigation he has drawn certain conclusions which I am going to talk about at the present moment.

He has shown that these two organisms behave clinically and pathologically differently and we might liken the behaviours of the sub-types of the pneumococcus which behave differently clinically and pathologically dependent on the particular type of pneumococcus that produces the lobar pneumonia. This biological difference is of importance in an effort properly to treat the case, keeping in mind constantly that the estivo-autumnal type is really a fatal disease unless properly handled, whereas on the other hand the tertian type may proceed for a period of years and the patients not necessarily die. As he has shown, the mortality rate of the estivo-autumnal type is quite high as compared to the tertian type. He has shown too that the reticulocytes of the blood seem to be free of pabulum on which tertian lives, and since these cells are relatively few in the blood stream and the tertian organisms largely live in them you cannot have the stupendous, overwhelming invasion with the tertian type. It is possible to keep in mind that certain cases may be overwhelmingly invaded by the tertian. On the other hand, the estivo-autumnal can invade the mature type of red cell. Therefore, they have much more pabulum on which they can grow and multiply.

I think these facts are important to keep in mind, and wish to say it is my opinion that Drs. Shushan and Blitz have done a very nice piece of work.

Dr. Morris Shushan (In conclusion): Our studies bring out another point which deserves emphasis at this time. We have found that practically all estivo--autumnal cases in our series were characterized by a tremendous variation in the number of parasites in the circulation. In several instances, no parasites could be demonstrated at certain times, while smears made eight to ten hours later revealed numerous plasmodia. Estivo-autumnal malaria should not be ruled out by a single blood examination.

The tertian malaria counts were only moderately high and showed surprisingly little variation.

In conclusion, we feel that the profession can aid in reducing morbidity and mortality in malaria by recognizing promptly and reporting the type of infection present. This will certainly help to combat the rising incidence of this disease in this State.

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# ROENTGEN RAY TREATMENT OF HAY FEVER

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LAKE CHARLES

The following report of sixteen cases of hay fever treated by roentgen ray indicates that good results may be obtained by the use of this method alone. It is believed that the roentgen rays have a specific desensitizing action on the mucous membranes of the nose, nasopharynx and eyes, and that the results obtained are not accidental. The duration of the effects obtained cannot be stated at this time, due to the fact that the "hay fever season" for this particular group of patients is over and will not return until next year. It is to be noted that among the cases reported here, two of the patients were suffering from active asthma during the course of treatment, and that neither of these patients were influenced by the administration of the roentgen rays. While this fact is mentioned, no attempt will be made to explain it at this time.

All of these cases were treated with roentgen rays with the following factors: 100 kv., 3 ma., 2 mm. Al. filtration, and a field of 10 x 10 cm. Irradiation was given over the region of the nose, the rays being directed slightly caudally in an effort to avoid direct irradiation of the pituitary. The eyes of all patients were protected by lead foil as soon as the first symptoms of improvements here were noted, and no patient received more than three irradiations without protection over the orbits. No other form of treatment was used by any patient during the course of irradiation. All patients are members of the white race, and each had a positive diagnosis of hay fever from a competent general practitioner or eye, ear, nose and throat specialist. Each case was studied with reference to occupation, coloring, and economic status, but as these apparently had no bearing on the results obtained, no further mention of them is made.

## CASE REPORTS

Case 1. C. L. B., aged 32 years, has had hay fever for four years, which lasts from early June until the first frost. It was not associated with asthma. The patient had had no food or pollen tests. His treatments in the past had been limited to local applications in the nose, none of which have given him more than a few hours relief.

The detailed roentgen ray treatment and results were as follows: August 28, 1935, he received one-half of a skin erythema unit of irradiation, which was followed by a moderately severe reaction that lasted about eighteen hours. September 3, 1935, one-fourth of an erythema unit was administered. This was followed by a slight improvement in his symptoms. September 9, 1935, he was given one-fourth of an erythema unit, which was followed by considerable improvement. His eyes no longer itched and they had lost their redness. September 13, 1935, one-fourth of an erythema unit was given. This was followed by complete cessation of all symptoms. On September 24, 1935, patient had had no treatment for eleven days and was free of all symptoms. October 15, 1935, he had had no symptoms to date, despite the fact that he had been hunting several times during the past month, a thing he had been unable to do during the past four years. November 16, 1935, he was still free of symptoms, even though he has been hunting several additional times. December 1, 1935, patient remained symptom free until the first frost of three days ago.

Case 2. R. D. K., aged 37 years, has had hay fever for the past two years. It begins in July, lasts until the first frost, and is not associated with asthma. He had had no pollen tests, but food tests made a year ago indicated a sensitivity to nuts, pork, beef, sea foods, eggs, beans, bananas, tomatoes, and white bread, none of which have been eaten during the past twelve months. Treatments in the past had consisted of local applications in the nose only, and none have afforded more than a few hours relief.

Treatment: This patient was given one-half of an erythema unit on August 29, and another fourth of a unit four days later. These were followed by a slight improvement. At this time he was away for fifteen days on his vacation, during which time nothing was done in the way of treatment. On his return, four more irradiations were given, each consisting of one-fourth of a unit, and each given after four-day intervals. These were followed by complete cessation of all symptoms which lasted up to the first frost.

Case 3. Miss M. Y., aged 30 years, had suffered from severe hay fever for the past five years. It begins in the early Spring and lasts until the first frost, and is associated with a severe asthma that is present at this time. Her asthma begins the latter part of August and lasts until the first frost. She had had no pollen tests, but food tests indicated sensitivity to eggs, pork and nuts. Her treatments in the past had included inoculations of extracts, local applications in the nose, sinus lavage, and control of diet. With the exception of a slight improvement in symptoms when she is on a proper diet, no form of treatment has seemed to help.

Treatment: This patient was given the initial one-half erythema unit on August 29. Subsequent doses of one-fourth units were given at four-day intervals to make a total dosage of one and one-half units. No improvement in her symptoms was noted up to this time and treatment was discontinued. No relief was obtained until the occurrence of the first frost, at which time both her hay fever and her asthma stopped.

Case 4. Mrs. G. E. S., aged 37 years, has had hay fever for eight years, which lasted from the middle of August until the first frost. It is not associated with asthma. She had had no food or pollen tests. Her past treatments had consisted of local applications in the nose, and had afforded no relief.

Treatment: One-half erythema unit, followed by a severe reaction, five days later one-fourth unit, and four days later a similar dose was given. Patient was free of symptoms following first dose and remained so until the first frost.

Case 5. T. C. S., Sr., aged 56 years, has had hay fever for twelve years which lasts from July until the first frost. He did not have asthma. No food or pollen tests had been made. His only treatments had been local applications in the nose and they afforded no relief.

Treatment: One one-half erythema unit and six one-fourth units were given with relief of symptoms.

Case 6. Mrs. S. H,, aged 39 years, has suffered from hay fever for three years, which lasts from early September to the first frost. She has suffered occasional asthmatic attacks for the past eight years, but was not troubled with them at this time. No food or pollen tests had been made. Her treatments had consisted of local applications in the nose, but no relief was obtained.

Treatment: One one-half erythema unit and four one-fourth units were given with relief of symptoms.

Case 7. T. C. S., Jr., aged 30 years, has had hay fever for five years. It lasted from the first of September to the first frost, and is not associated with asthma. He had had no food or pollen tests. His treatments had consisted of local applications only and they had afforded no relief.

Treatment: One one-half erythema unit and six one-fourth units were administered with relief of symptoms.

Case 8. Mrs. A. J. D., aged 30 years, has had hay fever for five years. It begins about September 21 and lasted until the first frost. She did not have asthma, and no food or pollen tests had been made. Her past treatments consisted of local applications in the nose, but these had afforded no relief.

Treatment: One one-half erythema unit and six one-fourth units wre given with relief of symptoms.

Case 9. Mrs. C. F. P., aged 29 years, has had hay fever for the past four years. It begins about the third week of September and lasts until the first frost. She had never had asthma. No food or pollen tests had ever been made, but this patient was the daughter of a physician and has received mixed fall pollens and cold-influenza vaccines each year with some relief up to this present season. She was also three months pregnant at the beginning of roentgen ray treatments, a fact which may have been responsible for her apparent failure to respond to inoculations, and which, as time passed, to about the three and a half month stage, may have favorably influenced roentgen ray treatment by the general improvement in her physical condition.

Treatment: One one-half and six one-fourth erythema units were given with complete relief of symptoms.

Case 10. J. G. L., aged 25 years, has suffered from hay fever for the past five years. It begins about the middle of September and lasts until the first frost. It was not associated with asthma. Food and pollen tests had been made and they have indicated sensitivity to ragweed. He had received treatment by means of the administration of pollen extracts, and these have seemed to help a little. However, no form of treatment has been taken this season prior to receiving the roentgen rays.

Treatment: One one-half erythema unit and six one-fourth units were given with relief of symptoms.

Case 11. Miss P. H., aged 36 years, has had hay fever for ten years. It always begins about the middle of September and lasts until the first frost, and it was not associated with asthma. Pollen tests had been made in the past and indicate that she was sensitive to marsh alder and cockle-burrs. She had taken these pollen extracts each year with good results until this year.

Treatment: One one-half erythema unit and one one-fourth unit were given, after which the patient did not return for further treatment. All attempts to contact her were unsuccessful, but a friend of hers informed me that the second irradiation was followed by a moderate reaction, and the patient was afraid to return for another.

Case 12. Miss F. J. C., aged 30 years, has had hay fever for the past twelve years. It always begins about the fifteenth of September and lasts until the first frost. She did not suffer from asthma. She had had no food or pollen tests, though she had found out from personal observation that she is sensitive to wheat flour which she avoids. She had changed climate each year and obtained complete relief but has had no other form of treatment.

Treatment: One one-half erythema unit, and six one-fourth units were given with complete relief of symptoms.

Case 13. S. J. S., aged 34 years, had suffered from hay fever for eight years. It was associated with a severe asthma, from which he was suffering at this time. Both his hay fever and his asthma begin about the middle of September and last until the first frost. No food or pollen tests had been made, but he had taken mixed fall pollens each year for the past several years with doubtful results. He had also received treatment in the form of local applications to the inside of the nose, but none of these had given more than a few hours' relief.

Treatment: One one-half erythema unit and six one-fourth units were given with no change in the patient's symptoms. He received no relief until after the first frost when nature automatically relieved him.

Case 14. F. G. S., aged 38 years, has had hay fever for ten years. It begins about the middle of September and lasts until the first frost. He also suffered from an occasional asthmatic attack at any time during the year, but had had none since his present hay fever started. No food or pollen tests had been made, but his physician had given him the course of mixed pollens several times in the past. This has always resulted in making his symptoms distinctly worse. He says that local applications have been of no help.

Treatment: One one-half and six one-fourth erythema units were given with complete relief of symptoms.

Case 15. Mrs. M. S. P., aged 24 years, has had hay fever for the past four years. She suffered from a light type of hay fever the year around, but it became very severe from the early part of September until after the first frost. She had never had asthma. No food or pollen tests had been made, and while she had been to a physician for diagnosis, she had never had any form of treatment.

Treatment: One one-half erythema unit and six one-fourth units were given with complete relief of her severe type of hay fever. The light type still remains apparently uninfluenced but the patient states she is "at least three-fourths well and more than comfortable".

Case 16. S. L. P., aged 30 years, had suffered from hay fever for three years. It begins the first part of July and lasts until the first frost, and was not associated with asthma. He had had no food or pollen tests. His only form of treatmen had consisted of local applications which had afforded only a few hours relief at the time.

Treatment: One one-half erythema unit and six one-fourth units were given with relief of symptoms .

## SUMMARY

1. Sixteen cases of hay fever were treated

by means of roentgen rays only.

2. Two of these cases were suffering from asthma during the course of treatment and failed to respond to the roentgen rays (Cases 3 and 13).
3. One case failed to return after the second treatment and no results were obtained (Case 11).
4. One case failed to show any response from a light year-round hay fever, but was apparently completely relieved from her "autumnal" type (Case 15).
5. The remaining twelve cases obtained complete relief from their symptoms following completion of their treatments and until the first frost when nature automatically ended their hay fever season.

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# AN INQUIRY AS TO THE NATURE OF CHRONIC APPENDICITIS

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Chronic appendicitis, once generally accepted as a disease entity, has been in recent years much buffed about and the purpose of these remarks is to attempt to determine its place in the catalog of diseases.

A disease to warrant acceptance must fill certain requisites. It must present a definite symptomatology within the range of clinical determination, it must present a constant and definite pathology, and the removal of the lesion must cure the patient. These are the phases which chronic appendicitis must meet if it is to retain its identity as a disease.

Since we speak of it as a chronic condition, it implies that there is also an acute disease. It will be profitable therefore first to examine acute appendicitis according to the requirements above outlined.

Clinically, acute appendicitis begins with epigastric pain, often with vomiting, to be followed in a day or so by pain and rigidity where the appendix is located. Why the epigastric pain? The pain obviously is a reflex one. We must assume that this referred pain is due to the stretching of the nerve plexuses in the wall of the appendix. From experience in operating under local anesthesia we know that crushing of the organ does not produce pain but a stretching of the wall does. In doing appendicostomy, an operation formerly done, one can, by passing a forceps within the lumen of the appendix and distending it, produce epigastric pain and vomiting. The same happens in removing gallstones under local anesthesia. Cutting the gallbladder causes no pain but when we attempt to pass a scoop about a stone, distending thereby the gallbladder, vomiting and pain are produced.

The local pain is caused when the appendix becomes sufficiently inflamed to cause irritation of the parietal nerves. If the appendix is so located, as in the culdesac, that this parietal irritation is not produced there is neither local pain, tenderness nor rigidity. If the appendix ruptures, pain and rigidity become diffuse but we no longer have to do with appendicitis as such but have to deal with a spreading peritonitis. That is the clinical phase of acute appendicitis, one of the most constant and clearly defined in clinical medicine. Now its pathology: We have to do in a typical way with the four cardinal signs of inflammation, namely swelling, redness, pain and heat. The first change is edema. This produces an enlargement of the organ which causes a stretching of Auerbach's and Meisner's plexuses, hence the referred pain and vomiting. Following this the appendix becomes hyperemic thereby producing redness. With the dilatation of the vessels an exudate is formed within the tissues and when this reaches the surface of the peritoneum covering the appendix we have a periappendicitis. When such an organ is exposed at operation the organ can be felt to be hotter than normal. In this way all the changes of acute inflammation can be recognized. This exudate produces a hyperemia of the parietal peritoneum and with this comes the local pain and rigidity.

If the process of inflammation regresses the acute attack subsides within one or several weeks. If it goes on to destruction of the wall of the appendix bacteria escapes and if walled in we have a localized abscess, or a spreading peritonitis, but this is no longer an appendicitis but a localized or a spreading peritonitis resulting from an appendicitis.

If we remove the appendix while the disease is confined to the appendix cure is prompt, complete and permanent. Therefore acute appendicitis qualifies as a distinct disease clinically, pathologically and prognostically.

Before passing to the consideration of chronic appendicitis in the same light it is necessary to emphasize the fact that an acute appendicitis having run its course subsides though it may recur. We speak then of a recurring appendicitis, not a chronic one. Likewise, as the acute process is subsiding time is required for the absorption of the exudate, both cellular and serous, and we have a healing appendicitis. This may result in the formation of a scar in the appendix. This is an end process of an acute state, not a chronic one. Therefore, neither an acute recurring appendicitis nor a healing one is to be confused with chronic appendicitis.

Passing now to the problem of chronic appendicitis we have as a symptom a more or less constant pain in the right flank. It is constant in the sense that now and then a sharp pain is felt somewhere in the right lower quadrant, here one day, gone the next, over a period of months and years. The pain is felt in the sacroiliac region, over the hip or down the medial surface of the thigh. The pain may be increased on very light or very deep pressure. There may or may not be muscular resistance. It there is increased resistance it is true of the whole abdomen and is not confined to the region of the appendix. Therefore it is not due to irritation of the parietal nerves. Furthermore quite commonly like pain is complained of in the left side as well as the right and not rarely it is located on the left side only. I will not mention the great variety of signs and sympoms which have been ascribed to chronic appendicitis such as dysmenorrhea and the like.

Now as to the pathology: The signs of inflammation noted in the case of acute appendicitis are all absent. Lymphoid infiltration has been most constantly mentioned. The appendix being a lymphoid organ such cells are found in all appendices whether there be symptoms or not. Fibrosis is the other point mentioned. The amount of fibrous tissue in the appendix is variable. It increases with advancing years and is nearly always marked in old age. That is to say fibrosis is most pronounced in that period of life in which symptoms ascribed to a chronic appendicitis are no longer marked. From the pathologic viewpoint these chronic appendices do not qualify as a disease.

The next point to be considered is the result following the removal of the appendix. The result of a follow-up of the staunchest advocate of chronic appendicitis showed 73 per cent not relieved. The percentage of those not relieved is higher in the hands of those who approach the problem with an open mind. Therefore prognostically operation for chronic appendicitis fails utterly. True enough the patients are usually relieved for about three months and then they appear as before.

Chronic appendicitis therefore lacks a definite symptomatology, lacks wholly the elements of inflammation, there is an entire absence of any constant pathologic change, and finally the results of the removal of the appendix fails to relieve the patient's complaints. We are compelled, therefore, to conclude that whatever may be the cause of the symptoms complained of they are not due to a disease of the appendix. The removal of the organ with the hope of producing a cure will fail, as experience has so abundantly proved.

The doctor must be something more than an iconoclast. If the pain complained of is not due to a chronic appendicitis, what is it due to? The patient wants relief and we must seek elsewhere. Starting anew in our investigations we discover that the vast majority of cases are found in young girls, chiefly in the years following puberty. There is often an associated dysmenorrhea. Quite often the complaints which have been ascribed to chronic inflammation of the appendix are much more severe at the beginning of menstruation, with pain referred to the sacral region, over the hip and down the medial surface of the thigh, typical referred pains of ovarian origin. We have therefore to look to the ovary. We note also that there is constantly a slight thyroid enlargement; this enlargement is always uniform, firm and elastic, obviously a functional disturbance of the thyroid gland. From the little material available we may say there is a colloid increase, a flattened acinal epithelium without cellular hyperplasia, obviously a dysfunction of the thyroid gland. We have therefore a constant clinical picture as such, as there is a constant anatomic finding, not of pathology but a disturbed physiology. This is sufficient to cause us to look to the thyroid as a party to the disturbance, the disturbance therefore being an endocrine imbalance. In years gone by ovaries were very commonly removed in this condition and we are able to state there are no organic changes in the ovary. Since the thyroid gland presents the only obvious changes we look here for the likely source of the disturbance.

We therefore proceed to correct the thyroid imbalance. From the therapeutic point of view it can be stated that with potassium iodide and bromide therapy these goiters lessen and with it the groin pains. When the endocrine balance is restored the pain disappears. Therefore we may conclude that the groin pains were not located in the appendix but in the ovary, a pain physiologic and not anatomic in nature and dependent on an endocrine imbalance.

Furthermore, we are able to observe nature's way of securing an endocrine balance. Pregnancy ends these groin pains. No one has ever seen a so-called chronic appendicitis pushing a perambulator. Furthermore, those girls who acquire venereal disease are not troubled with chonic appendicitis. One may say therefore that the groin pains are the price of virtue.

We may conclude from both positive and negative evidence that the pains which have been ascribed to a chronic appendicitis are really ovarian in origin due to endocrine disturbance. —Q. E. D.

## THE OPERATION OF THE OSCAR ALLEN TUMOR CLINIC

**JAMES T. NIX, M. D.**
New Orleans

The rising mortality rate of all malignant disease, the apparent increase in its prevalence and the lack of a specific curative measure make cancer control the gravest problem confronting medicine today. It has become well established that a concerted attack on cancer may best be effected through the operation of tumor clinics in general hospitals. In furthering the aims of the Committee on Malignancy of the American College of Surgeons, the Tumor Clinic at Charity Hospital was created in September, 1933. Tonight I propose to review the work of the institution during the first two years of its existence.

A tumor clinic at its best enables cancer victims to secure the benefits of the latest advances in therapeutics in a number of unrelated fields by integrating the knowledge of several experts. It also affords an opportunity for increasing our understanding of the nature and genesis of tumors.

Soon after organization we realized that one of the essentials was the possession of adequate records, if the clinic was to accomplish anything in clinical research. It is our belief that we must strive to cultivate clinical as well as experimental methods of inquiry into the nature and vulnerability of cancer. Clinical research should prove of invaluable service in unraveling some of the more subtle and enigmatic problems in malignancy. Keen, exhaustive study of patients throughout the course of their malady may well be expected to shed light on the predisposing factors, the incipient stages and the hereditary pattern of human neoplasm. The precise evaluation of suitable methods of treatment is dependent on the exactness of our clinical observations and the scientific usefulness of all information obtained in the Clinic is conditioned by the accuracy with which we transcribe it to our files for subsequent reference and analysis. As Maud Slye well says, "Within the potentiality of records penetratingly taken there may lie the solution of cancer." Hence the importance of adequate tumor records is immeasurable. For this reason we investigated the records of fifty-nine American, four Canadian and five European tumor clinics. Record forms from these institutions are on exhibit and will repay careful perusal. Their best features have been incorporated into our system.

The record includes an exhaustive history and complete physical examination with good description of the lesion. Etiologic factors, such as trauma, chronic irritation, previous pathology in the area involved and heredity, are especially investigated. Whenever the lesion is visible, a diagram is drawn to scale, recording as accurately as possible its dimensions and shape. This serves as a guide to the distribution of interstitial foci of radiation. The diagram and a photograph provide a graphic record which is incomparably superior in preserving a vivid image of the actual pathology present. The most complete set of diagrams for this purpose now in use at our clinic originated at the Paris Radium Institute and have been widely adopted by other clinics. By drawing them to scale on ordinate paper, as is done at the British hospitals, more precision is attained. For gynecological diagrams, the life-size drawings designed by Dickinson have become standard. By repeating the photographs and diagrams whenever the lesion changes, progress or regression are depicted, that is, response or tolerance to therapeutic measures.

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*Read before the Orleans Parish Medical Society, November 25, 1935.

In the graphic preservation of our cases it has been our good fortune to have the services of Mr. Stewart, artist for the L. S. U. Medical Center. Most of the paintings on exhibit are his work and it is needless to point out their faithful reproduction of the pathology present as well as their undoubted artistic merit.

An essential part of the record is the biopsy report. Biopsy in our experience has proved an entirely harmless procedure. Of six hundred and three patients seen during two years, four hundred and seventeen were subjected to biopsy without untoward results. Indeed, the advantages of a biopsy so far outweigh any consequent dangers that its performance has become mandatory in nearly every lesion whose nature may be malignant. The tendency now is for patients to apply when their condition lacks gross diagnostic features, making a microscopic picture the sole criterion. Despite much research this is the only reliable method of identifying malignancy in the curable stage. Hence biopsy becomes imperative. In using the electrosector, with minimum trauma and adequate preliminary or immediate post-operative radiation, the risks of biopsy are negligible. By definitely establishing the diagnosis, it confers authenticity to our record.

It may be thought that a record of this type will be voluminously unwieldly and over-detailed. We must remember that we are dealing with an obscure affliction, no particular of which can be too trivial, no case record of which can be condemned as prolix. For in the inscrutable front of our formidable enemy a minor sign may point the way to its ultimate defeat.

The Staff at the Oscar Allen Tumor Clinic is composed of a surgeon, two pathologists, a radiotherapist, an internist, a dermatologist, a gynecologist, an oral surgeon, and two clinical assistants. The entire staff meets in conference once a week. At these meetings the new patients admitted during the week are reviewed and freely discussed by representatives of nearly every specialty of medicine. A plan of treatment is dictated and recommendations are sent to the service from which the case was referred. The chief of each service is at liberty to follow or disregard these recommendations according to his own judgment. In addition to the new cases, old cases that are progressing unsatisfactorily are reviewed and new therapy advised. Good therapeutic results are brought to the attention of the staff. Visitors are present frequently, and it is to be hoped that as the Clinic efficiency improves more and more physicians will avail themselves of the opportunities for study of our malignant cases.

At these conferences the work of our pathologists, Doctors von Haam and Connell, has been invaluable. No longer does it suffice to obtain a report stating that a carcinoma or a sarcoma is present. The pathologist must give the histogenesis, the degree of malignancy and the radiosensitivity of each tumor. With this information and the clinical and other laboratory data, a rational guide for treatment is provided and prognosis made possible.

A five-year follow-up is contemplated in every proved malignancy. During this period regular visits are required from the patients. With the patients at the Clinic the task of obtaining their cooperation is a heavy responsibility for the social worker. Miss Louise Myers, who has been in charge, has performed this work most ably, and we are confident that our percentage of five-year follow-up will convey real significance when our statistics are tabulated.

Needless to say the staff has cultivated a familiarity with all the refinements of diagnosis which tend to discover neoplasia early in their development. Aside from careful clinical and roentgenologic studies, transillumination has been tried, Schiller's iodine test has been found valuable, the Ascheim Zondek reaction in teratoid tumors is a distinct forward step and a blood phosphatase determination is of sufficient merit to place it in use for all bone tumors.

As to therapy, the surgical interventions have been performed by members of the several services whose cases were referred to the Clinic. The excellence of their work will be appreciated in the case records which are to be reported tonight. In the field of radiation, Dr. Miles, our radiotherapist, though handicapped by the enormous amount of work which had to be performed with a single deep therapy machine, and also by the improper distribution and poor filtration of our radium supply, has done remarkable work. It will be possible to appreciate this by the slides which are to follow.

It has been our observation that the doses of radiation administered to malignant growths heretofore were far too small to be effective, but the erroneous conclusion was prevalent that radiation was of no curvative value. As to ultimate curative results, nothing can yet be said from the material seen at the Clinic but it is established beyond a doubt that complete healing of primary growths, even when quite extensive, can be attained by radiation properly delivered. It is to be emphasized nevertheless that the indications for radiation of all types are becoming better defined, and that experience and considerable knowledge are required to undertake the administration of roentgen rays or the application of radium.

It has become our policy to recommend preliminary radiation even in radio-resistant growths, such as rectal cancers and bone sarcoma of the true osteoplastic type. Devitalization of the cancer cells, reduction in the size of the tumor, control of hemorrhage, and improvement of secondary infection are benefits derived from it. Subsequent surgical procedures are made easier, and the risk of causing metastases by operative manipulation is reduced.

We consider the method of protracted, fractional, intensive roentgen therapy of malignancies of the oral cavity a remarkable triumph of radiotherapy. The immediate results in nearly every one of our cases so treated have been most gratifying.

From September 8, 1933, to September 15, 1935, six hundred and three patients have been seen at the Tumor Clinic. Of these one hundred and fifty-three have died since their first visit and one hundred and eighty-two have been discharged because they had no neoplastic disease, or because their growths were benign and cured. The others are being followed up at the Clinic with regularity.

It is exceptional to see true malignant cases in the early stages; in the majority the growth is well advanced, offering a difficult if not a hopeless therapeutic problem. However, it can be said with satisfaction that many of the apparently hopeless cases have been kept controlled and are surviving far beyond our expectations.

In presenting the following patients* we should like to emphasize that they do not represent the work of the Clinic staff alone. In a sense they show the collective efforts of the entire surgical and medical staffs at Charity Hospital. We wish to express our thanks to all the services that have cooperated with the Clinic and to offer our apologies should we inadvertently fail to give proper credit for their work. We believe that with greater cooperation the results with our cancer cases would be even more encouraging. Our idea in bringing these cases before you is to call to your attention the possibilities of present day methods of attack on malignancy and to show a basis on which we can view this field of medicine with greater optimism.

We should like to stress the need for instructing the general practitioner of his role in prophylaxis and early diagnosis. Much can be accomplished in reducing the incidence of cancer by destroying the soil most favorable for its growth. We refer to those chronic lesions of the body which have been found to be common precursors of malignancy, such as leukoplakia buccalis and cervical lacerations. Avoidance of all forms of chronic irritation will help in the work of prevention. The public must equally be educated in the facts that will prompt them to seek treatment early. No factor must be neglected in our campaign against cancer.

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*Dr. Nix presented actual patients; statistical charts and color slides were shown on the screen.

Before concluding we wish to express our appreciation for the work of all the members of the Clinic staff and to our photographer, Mr. Diet.

### CONCLUSIONS

In the efficient operation of a Tumor Clinic lies the protection of a community against the ravages of cancer; it is the agency by which all the most modern knowledge and the most effective methods of combating cancer become available to the victims of malignant disease; it institutes the collective approach to cancer control; it pools the knowledge of several specialists in the recognition and treatment of new growths; it is a medium for clinical and experimental research into the nature and genesis of cancer; it is a focus of professional and public education as to the manifestations of incipient neoplasms and as to the facts on prevention, and it represents warfare against cancer at its best.

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## CONTEMPORARY MEDICINE AND THE "SOUL"

**MARVIN M. BLACK**
New Orleans

Medical science, long adhering to the strictly physical approach to disease, is today beginning to realize the inadequacy of this point of view and to give increasing attention to the influence of the mind upon bodily functions. Contemporary medicine is learning that despite the attempts of certain schools of psychology to eliminate the "soul", or the emotional factors in life, many kinds of diseases yield to treatment directed toward the psyche. Little by little physicians are realizing anew that soul and body are inseparable, that the consoling faith of religion, or a cheerful disposition may help the body, and that one's physical condition may affect his entire outlook on life. Medicine has become keenly aware of the importance of the inner world to the patient; that within the "soul" of man are factors making life either a Heaven or a Hell.

The alarming increase in the number of mental disorders, due to the complexities and confusions of present-day civilization, is responsible in large measure for this shift of emphasis. For decades, medicine has attempted to avoid all contact with strictly psychic problems upon the assumption that such are outside its province, but the study of the neuroses has brought out the unmistakable fact that their causes are psychic, and that their cure depends to a great extent upon psychic methods of treatment.

The psychic factor in disease is now recognized in its own right along with such factors as inheritance, disposition, and bacterial infection. It is well known that physicians are often unable to cure an ordinary disease in a person with a distorted emotional life, and that drugs lose their efficacy under great emotional stress. Furthermore, many cures take place in our hospitals that are unexplainable on the basis of our present knowledge of medicine. Patients have been known to recover who were expected to die and have astonished their physicians. Some of the most outstanding instances of cures presumably effected by the emotions are those reported at Lourdes, St. Anne de Beau Prés, and other noted shrines. Things happen at these places which can not be explained upon purely mechanical principles alone. Certain unknown psychic forces appear to be at work here bringing about some remarkable recoveries that apparently restore people to normal health.

That modern medicine is paying more and more attention to the influence of the mind upon the body may be seen by even a cursory glance at the medical literature of today. The newest emphasis in nearly every field of research, from biology to psychology, from constitutional medicine to neuro-anatomy is on the importance of careful study not only of the parts, but of the organism as a whole.

A striking illustration of this changing viewpoint of contemporary medicine is the present movement to revamp the curricula in leading schools of medicine. The Committee on the Costs of Medical Care of the American Medical Association has stressed the necessity for training more general practitioners in whom medical service to the "whole man" may be centered. They feel that "the social background and interrelations of medicine should be as much a part of medical education as the physical, chemical, and bacteriological background."

Such revamping of the medical curricula, already adopted or suggested, is part of the changing attitude of the relation of the physician to society. The orientation of medical education now under way implies much more than a mere revision of the curriculum. It involves a redefining of the purpose of a medical course. In line with this thought, efforts are being made to overcome the isolation of the various medical courses and to correlate them into an integrated whole. Especial stress is being placed upon the study of the living body, to relate courses in anatomy and physiology that have been unfortunately divorced. Critics of present-day medical training contend that the student has really never been taught to study the human body as it functions in a living being. His knowledge has come from the cadaver, whose desiccated organs have lost their true relations in the living body, and give the student an incomplete picture of the living, breathing individual. He has learned the parts first, without reference to the whole, and is somehow expected later to synthesize these disconnected facts and relate their meaning.

Little by little, however, physicians are getting away from the "guinea-pig" school of medicine and are realizing that a doctor has to deal with sick individuals and not with the guinea-pigs of the physiologist. The new approach to disease has been conveniently summed up in this fashion: Here is a sick human being. Whether he has typhoid fever, pneumonia, or infantile paralysis does not matter, but most important, what is he doing about his bodily illness? What is his attitude? What is he making out of it? What is he going to do when he is cured or when he has to live the life of a cripple? In other words, what is the total reaction of the individual to the particular situation? Through this point of view, it is brought home to the student that the patient is a human being and that even after diagnosis, he is still dealing with a human personality, and not merely with the case of a particular disease.

The trend in modern medicine away from specialization—from treating diseased hearts and livers as if they were organs entirely removed from the personality of the patient—has been accompanied by a rapidly changing attitude toward psychiatry. Psychiatry is the only branch of medicine that enables the student to see the patient as a whole. It assists the student to apply his knowledge of physiology, anatomy, and other biological sciences to the understanding of the patient as an individual. The various ways in which the individual, with his own special endowment, his own inner difficulties of equilibrium and past experience, adapts himself to the conditions of his life by word and thought and deed; all these are of vital concern to the psychiatrist, and to the general practitioner as well.

The psychiatrist today is concerned with the whole question of personality adjustment, of the individual's reaction to his total environment. He does not limit himself to the purely mechanical aspect of human behavior, but studies both mental and physical factors involved. Looking at the total situation, he probes into the complexity of environmental and cultural factors, and studies the way in which the individual adapts himself to the specific situation in his own life. This point of view is stressed particularly in the constitutional theory of disease, which seeks to show a direct connection between particular types of constitution and particular forms of illness. Here there appears a close tie-in between anthropology and the teachings of psychiatric medicine.

This breaking down of the old dualism between mind and body is revealing the closer relationship between mental and biological processes, and the futility of attempting to separate mental diseases from physical diseases, or mental processes from physical processes. In line with this trend, there has been an increasing tendence in medicine to take account of psychological influence in the origin of certain diseases whose origin is as yet uncertain. These facts have led to the gradual breaking down of the old distinction between functional and organic disorders. It has been found that certain diseases usually termed "organic" sometimes yield to psychological methods as certainly as the "functional" type. It is argued that the suggestive action which manifests itself in the case of tumors, or local malformations, can be very simply explained solely by the influence of the mind. Furthermore, ideas implanted in a suggestible mind may even lead to the building up of cellular tissues in an organ diseased through physical causes, seeming to prove the statement that "there is no tissue of the human body wholly removed from the influence of spirit".

Medical science thus recognizes that certain unhealthy, habitual states of mind are apt to be accompanied by various derangements of the function of the body. In keeping with this thought, medicine has found in psychotherapeutics an effective means for the resynthesizing of personality, the restoration of the normal individual. The aim of psychotherapy is to reassociate the split-up personality, to form such healthy complexes of ideas as will stimulate the desired complexes and contribute to the well-being of the individual, adapting him to his environment.

Merely securing the proper adaptation to a given environment, however, is not sufficient—it does not supply meaning to life nor the motives for living. One of the greatest mistakes of medical science has been the assumption that it could get on without interesting itself in spiritual matters. Yet it is now being recognized that the truly capable physician must be somewhat of a philosopher and a psychologist, ready to minister to the patient's mental ills as well as to aid in the healing of his body.

Oftimes the physician finds that what the patient needs is to change his entire outlook on life, to avoid gloomy thoughts and to engage in some worth while occupation. Through suggesting the right acts, the physician helps the individual to adapt himself to his surroundings. It is at this point that medicine comes in close contact with religion. In this wise, physicians and educators, religious and otherwise, make use of the same fundamental influences: utilization of emotions, desires, strong interests, and enthusiasm; definite and arduous training in some one direction; and the eradication of conflicting desires or hidden obstacles to the reconditioning of motor habits and memories in the subconscious.

It is a well known fact that the too self-conscious individual by concentration upon himself becomes morose, hyprochondriacal, unfitted to carry on his daily tasks. In this respect, then, he has "lost his life", and finds no joy in the things that make it of any value. For, true mental and physical happiness lies in the automatic functioning that is unconscious of itself. Both doctor and clergy realize that one who loses himself in his work, or exerts himself for the good of others, finds in that work a happiness and peace of mind not otherwise attainable. One who is so "lost" in his work or in the service of others turns his thoughts away from himself entirely, accepts the possibilities of illness and disappointment, and "finds" his life in the thought of work well done.

In the complexities of modern life today, there is more and more need for a closer relationship between medicine and religion. Both the minister and the physician are engaged in helping men and women adjust themselves to their surroundings. Both together can help thousands of distressed men and women to a deeper understanding of themselves, to a more perfect adjustment, a more adequate control. Both the physician and the pastor must know their patients as individuals, how each reacts to his particular surroundings, and the circumstances which have made them what they are.

Jung has called attention to the fact that mental illness is closely associated with a decline in religious life; that the lack of something to tie to has everywhere produced an alarming lack of balance. In this period of restlessness, nervous strain, and disorientation of outlook, many patients have come to him, not because they were suffering from a neurosis, but because they can find no meaning in life, or were torturing themselves with perplexing questions. Unfortunately, few doctors are equal to the task, for as medical men they have felt it unnecessary to have a finished outlook on life. Of the hundreds of patients over 35 years of age which he has treated, Jung states that "there has not been one whose problem in the last report was not that of finding a religious outlook on life". He feels that every one of them fell ill because he had lost that which the living religions of every age have given to their followers, and "none of them has been really healed who did not regain his religious outlook".

Today, when doubts, difficulties, and fear beset us on every side, and many of our traditional idols have been smashed, thousands are uncertain which way to turn. In such times as these, whether or no, the physician must ofttimes play the role of priest and spiritual advisor. He must join hands with the clergyman to meet the great task of enabling human beings to enjoy a richer and fuller life. The physician should welcome religion as an ally regardless of the form it takes, because it gives the patient a sense of security and hopefulness which reinforces all the influences making for better mental health and self-confidence.

Present-day medicine, then, is realizing anew the importance of the patient as a personality; that the physician can not make blanket prescriptions to fit all cases, but must suit the cure to the individual needs and peculiarities of the patient with whom he deals. Leaders in medical service realize the necessity for giving close attention to the psychic aspects of disease, the neglect of which has given the quack and the charlatan an opportunity to exploit therapeutic resources that rightly belong to medicine. The modern physician can no longer be a mere diagnostician or dispenser of drugs, but must endeavor to help the individual orient himself properly to his surroundings, to become again a normal member of society.

Thanks to medical research today, man as a living breathing "soul", if you please, is being restored to his former place in the scheme of things. Through the concept of the organism-as-a-whole, and recognition of the fact that there is a psychological factor in every illness, there is under way a revolution in medical thinking of far-reaching consequences. The doctor of the future will not be a mere technician, ministering to the bodily ills alone, but armed with a broad, humanistic background, and the philosophical outlook of psychiatry, he will be able to help the patient as a personality to adjust himself properly to the complex forces of present-day society, and to prevent many of the ills that now beset mankind.

# THE UNITED STATES PHARMACOPOEIA*

OSCAR W. BETHEA, M. D.
NEW ORLEANS

Many physicians do not have a correct understanding of the relation of the medical profession to the Pharmacopoeia. The impression sometimes obtains that it is a volume principally by and for pharmacists, manufacturing houses and other commercial interests. A brief resume of the history of the U. S. P. may be of interest and I shall endeavor to place some of the facts briefly before you.

In 1817 Dr. Lyman Spaulding of New York City submitted to the Medical Society of the County of New York a proposition for the formation of a National Pharmacopoeia. This was approved and put into effect. The plan substantially was that of inviting every incorporated medical society and medical school in the United States to send delegates to participate in this work. The medical society of New Orleans gave its approval but did not send a delegate. The book was published in 1820. This first meeting, before adjourning, arranged for a decennial revision and this has been carried out to the present day. In 1830 the Surgeon General of the Army and the Senior Surgeon of the Navy were invited to participate in the convention. In 1840 it was voted to request the assistance of the colleges of pharmacy. In 1850 the colleges of pharmacy were invited to send delegates to the convention. In 1890 incorporated pharmaceutical societies were also requested to send delegates. At that time the Marine Hospial Service was also included among those eligible to send delegates. In 1900 the business details of compiling and publishing the Pharmacopoeia were turned over to a board of trustees. In 1906 the Pure Food and

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*Read before the Orleans Parish Medical Society, Monday, April, 13th, 1936.

Drug Act of the Federal Government made the Pharmacopoeia the legal standard for all medicinal agents that it contained and this was followed by similar action in the various states and municipalities. In 1909 a Spanish translation was published and this policy has been continued ever since. It has been of inestimable value in promoting pleasant relations with our sister republics. In 1910 the revision committee, which is selected every ten years to revise the text, was increased to fifty and this number has remained the same. It was also arranged that much of the work of the general committee be carried out by fifteen sub-committees. At this time also the United States Department of Agriculture and the Treasury Department were included among those eligible to send delegates. In 1920 work was further facilitated by the appointment of auxilliary members to the sub-committees.

My first official cooperation in this work was begun with the convention of 1930, when I was the delegate of the Louisiana State Medical Society. The convention met on May 13 in the city of Washington. There were about 500 accredited delegates. This large group met, elected general officers and a board of trustees, and adopted a general policy that was to be followed in the forthcoming revision. The Revision Committee of fifty was also elected, and the convention then adjourned. The General Committee remained long enough to organize, select sub-committees and actually make a substantial start on the work of revision. This General Committee consisted of 17 physicians, 33 members of the allied sciences, and the president of the convention, the celebrated clinician, Dr. Walter A. Bastedo who serves ex-officio and has participated in every meeting since that time.

Some physicians resent the fact that Revision Committee does not consist entirely of Doctors of Medicine. This plan was tried out in the earlier years but found to be totally impractical. Physicians do not have the necessary information nor have they the time or facilities for carrying on the essential work.

However, the Sub-committee on Therapeutics and the Sub-committee on Scope are entirely under the control of physicians. The first of these is headed by Dr. Henry A. Christian; the second, by Dr. Reid Hunt. The Committee on Scope which has the task of selecting every drug to be included, consists of 17 physicians and five pharmacists. It was found necessary to have some pharmacists, as they have special equipment which is essential. For example, the physicians might not feel that a certain kind of wax was of sufficient importance to be included, while the pharmacists would know that this wax was required for the manufacture of some important products which were recognized as of value in medicine. When there was any particular doubt about the value of a proposed remedy, the question was referred to the Subcommittee on Therapeutics and their opinion has always been accepted as final. You must not get the impression that these 33 non-medical members of the General Committee are all druggists. Most of them are chemists, bontanists, specialized biologists or physicists. Let me give an illustration of the necessities that arise. The Committee on Scope, for example, feels that it is advisable to include preparations of liver. The matter is referred to the Committee on Therapeutics, which expresses its approval and recommends the inclusion of preparations to be used by mouth and intramuscularly. The Committee on Scope then votes to include them in the forthcoming revision. That is just about all that the doctors are able to do. The matter must then be referred to the members of the allied sciences to determine the questions of patent, feasibility of manufacture, the processes of manufacture, standards of strength, mode of preservation, tests for purity and for identification. The physicians' part of this is only a matter of a few hours; the rest of the work is a matter of years of patient painstaking labor with unlimited facilities at the disposal of those responsible. Most of the members of the revision committee are not only specialists in their chosen fields but are professors in some of the great institutions.

The General Committee, including its various sub-committees, has met each summer and the attendance has been almost 100 per cent. These meetings were really for work. For example, at one of the gatherings held in the Pocono Mountains, the sessions continued all day and usually lasted until midnight. I spent a total of eleven minutes in recreation and sightseeing.

The majority of the work was carried on by correspondence which amounted to thousands of pages. Every drug included in the Pharmacopoeia XI was selected on its merits after the most thorough study and discussion. I estimate that we considered in all between two and three thousand medicinal products. These included every agent in the previous pharmacopoeia, every one listed in New and Non-official Remedies and every one suggested to the Committee by any individual or group, whatsoever. In this edition you will find about 58 new products included and 108 old ones deleted.

I wish to add that in many respects, the Revision Committee of the Pharmacopoeia is the most remarkable body of men with whom I have ever been associated. I was never aware of the tendency on the part of a single individual to override any opinion of the medical members. I never knew of an instance of lack of perfect respect for any member personally or for his views on any subject. I never heard one unkind word or discourteous expression; I never sensed an instance of unethical influence.

Therefore, in presenting to all of those concerned, the United States Pharmacopoeia XI, the officers, trustees and Revison Committee give you a work that is at least the result of their best efforts and I believe that it is one that should command the respect and loyalty of every member of the medical profession.

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# BACTERIOPHAGE IN RESPIRATORY DISEASE*

**HARRIS HOSEN, M. D.†**
**and**
**JOHN SIGNORELLI, M. D.†**
NEW ORLEANS

The common cold is by far man's most frequent and most annoying infection. Moreover, this disorder represents a marked economic liability, for it carries a higher morbidity rate than any other disease. It may be said that a search for its direct cause has met with little success, for while from time to time, various micro-organisms have been credited as being the causative factor, today the concensus of opinion has definitely settled on the idea that the active cause of the common cold is a virus.

Although in its pure form a common cold usually runs its entire course in three to seven days, the majority of cases become complicated by secondary infections as the resulting lowering of local resistance promotes activation of one or more of the pathogenic germs comprising the flora of the normal throat and surrounding accessory cavities. These germs may include the pneumococcus, micrococcus catarrhalis, staphylococcus, or streptococcus. This flora varies according to the season of the year and particular environment, but in general the flora is more abundant during the winter months.

The tissue changes in the pure cold represent a catarrhal inflammation of the lining of the entire upper respiratory tract, involving the nasal cavities, sinuses, larynx, trachea and upper bronchi. If the condition remains uncomplicated complete resolution of the tissues occurs within three to seven days. When, however, pathogenic micro-organisms already present become activated by the virus producing the cold, the result will be one or more of the usual complications such as purulent sinusitis, laryngitis, bronchitis and eventually even bronchiectasis, all of which are so difficult to treat as to tax the ingenuity of all physicians.

Because of the relatively poor results obtained through the use of usual methods in the treatment of the common cold and its complications, and because of certain reports as to the efficacy of bacteriophage in these conditions, we decided to apply this method in a group of our cases.

Bacteriophage, according to D'Herelle, the original discoverer, is a living invisible organism which survives by feeding on other organisms. Other investigators claim that the action of bacteriophage is purely enzymatic. In our cases we used entolysate which is composed of the bacteriophage specific for various strains of Micrococcus catarrhalis, pneumococcus, Staphylococcus aureus and several strains of streptococci, and also the proteins of lysed Micrococcus catarrhalis, pneumococcus, staphylococcus and streptococcus in solution.

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*Read before the Louisiana State Medical Society, New Orleans, April 29-May 1, 1935.

†From the Department of Pediatrics, Louisiana State University Medical Center and the Pediatric Services of Charity Hospital, New Orleans.

Our cases represent children from the newly-born age to 14 years and may be divided into two groups, namely:

1. Fifty cases of colds in the pure form.

2. One hundred and ninety cases of colds with complications existing for ten days or more; average thirty-six weeks. These were roentgen rayed for both sinus and lung lesions because of their marked chronicity. Each of these showed evidence of chronic bronchitis or sinusitis, or both. Five cases in this group showed definite evidence of free pus in the sinuses.

The technic employed was as follows:

Six or more drops of entolysate were instilled in each nostril every three hours or six times a day. All cases with complications lasting three months or over which showed a response to this instillation were given in addition subcutaneous injections of entolysate for the purpose of utilizing the vaccine property of the solution. The initial injections were one-half c. c. Subsequent injections were repeated at intervals of three or four days, each being increased by one-half c. c. until a local reaction manifested by redness, tenderness, and local heat was obtained. The dose was then kept at this quantity and continued until eight such injections were given.

Thus we used entolysate locally to utilize the direct bacteriophagic action and parenterally to utilize the vaccine action.

In evaluating the efficacy of the procedure, cases in which the nasal discharge and cough were relieved 80 per cent or more were considered cured by the action of the entolysate; if marked improvement ensued within forty-eight hours of the first treatment the improvement was considered merely coincidental, and was not credited to the entolysate.

The results in our series were as follows:

1. The fifty cases of common cold without complication showed an average morbidity of three to seven days. Only six of these cases developed complications lasting over ten days, and this was in the form of a cough. No controls were used. These results were recognized as ordinary, since the average cold in the pure form even without treatment usually has an average morbidity of three to seven days.

2. Of the one hundred and ninety cases in the second group one hundred and fifty-five or about 80 per cent showed 80 per cent or more improvement, and were credited as having been benefited by entolysate. The thirty-five cases or about 20 per cent in this group having the longest duration and more serious complications were followed up for an average of nine months. Of these only five cases showed a recurrence of the nasal discharge, chronic cough or both. These were the five cases which on x-ray examination had revealed definite pus in the sinuses. The remaining thirty cases showed a marked improvement in general health, a decrease in the frequency of development of colds and freedom of the previously existing chronic nasal discharge and cough.

We wish to emphasize that all cases where injections were used first responded to local treatment with entolysate.

In a separate series of twelve cases of chronic cought lasting three or more months injections were given despite the complete failure to elicit a reaction by the use of local instillations. These cases showed practically no response to the vaccine therapy also. We feel from this that when local treatment is successful the indications are that the organisms responsible for the infection are similar to those contained in the vaccine; hence, the specific action of the entolysate or subcutaneous injection.

From this work we conclude that entolysate is valueless as a treatment procedure for the common cold, but may be of great value in preventing complications. We firmly believe that this product was beneficial in 75 per cent of the chronic respiratory infections that developed as complications to the common cold. It is important to emphasize that similar good results have not been regularly obtained in adults with chronic respiratory diseases. This perhaps may be explained by the fact that infections in childhood attack young tissues which characteristically tend to re-establish their normalcy once the pathologic agency is removed whereas the adult matured tissues have a tendency to produce changes manifested by fibrosis, thus making a return to normal very difficult if not impossible.

### CONCLUSION

We do not hesitate to conclude that early treatment of the complications of colds with entolysate before definite tissue destruction has occurred will prevent in the majority of cases the usual complications, that is chronic sinusitis, chronic bronchitis and bronchiectasis.

### DISCUSSION

Dr. John Signorelli (New Orleans): In accepting the opportunity of carrying out this investigation and watching the results, I particularly, as well as everyone on my staff, was aware of the fact that recommendations of the use of any panacea, or so-called panacea, for the cure of any clinical entity, was open to wide criticism. We felt that regardless of criticism we should show sufficient courage to try out new methods, particularly when sponsored by men throughout the country, and apparently giving good results. It is well known to all of you, I am sure, that as far back as one year ago the A. M. A. condemned the use of this special therapy. Within recent months, there have appeared in the journal of the A. M. A. favorable reports of the use of bacteriophage in respiratory disease. Our work, therefore, should be considered more as an effort to contribute further investigation for determining the value of this type of therapy rather than arbitrarily to appeal for its use.

There seems to be a definite place for bacteriophage in the complications which usually accompany a cold. As Dr. Hosen brought out, a cold per se not only requires no treatment, but also is not the cause of the usual treatment. It is not the cold we try to attack. What we are particularly interested in are the ravages played by secondary complications that accompany and follow the so-called common cold as sinusitis, or bronchitis. These complications following a common cold make the patient liable to infections of more serious degrees. Dr. Hosen pointed out that use of bacteriophage gives more or less favorable results in the treatment of chronic bronchitis, and these cases which are cut short in their course are a potential protection against the ravages of tuberculosis. If for no other reason than that we can show you that the use of bacteriophage reduces these complications and thereby reduces the dissemination of a disease such as tuberculosis, then bacteriophage ought to be used and the Society should, under its control, check up our observations to see whether or not we have made correct ones.

We feel Dr. Hosen's work is a definite contribution and present it for the purpose of awakening interest in this matter with the idea that other men will use the bacteriophage, not in combatting the cold per se, but in attempting to cut short the ravaging complications. I personally want to compliment Dr. Hosen, because I know that he has contributed a lot of work. I want to take the opportunity of congratulating him and attempting to encourage him to continue in this particular field because I feel that as others have reversed themselves, those men who have opposed this type of therapy will come around as they did. Many observers about a year ago also condemned the work done in the field of allergy, and in that had to reverse themselves. The field of allergy is something analagous to this in my mind.

Dr. Jos. D. Martin (New Orleans): Dr. Hosen has given a very excellent paper. I have used bacteriophage and have gotten results from it. A cold is a series of respiratory infections. If we can stop a coryza, we can stop trouble further down. I believe that the cold can be avoided if we can get our patients in time, but we seldom do. No one thinks much about an ordinary cold, except a few doctors who come to me in October and think I can abort a cold with bactoriophage.

One thing Dr. Hosen did not mention, just what his method is. I usually have the patients lie over the edge of a table and put the drops in the nose and let them stay down three to four minutes each time and then sit up suddenly and throw the head forward. That way the drops get into the sinuses which does more good than just dropping them in.

Dr. D. O. Willis (Leesville): I would like to ask Dr. Hosen just one question. I notice he said he gave this substance in increasing doses until he got a certain reaction. I would like to ask if he then discontinues the use of the vaccine when you get a reaction, or do you continue with it for a longer period?

Dr. S. Chaille Jamison (New Orleans): I think bacteriophage is one of those biologicals that we all look forward to with the very greatest hope. On the whole, I am afraid it has disappointed us. Now, as I understand bacteriophage, whether it be an enzyme, or whether it be an actual living organism, is still open to some question. I do understand from what I have read that it has been quite clearly shown that bacteriophage is extremely specific for the particular organism by which it is produced, that it is even more specific than antibodies. For instance, if you try one form of staphylococcus, alba or aureus, it is not specific except for the particular organism.

As I understand the subject until success has been definitely proved it is not the logical application, and I think D'Herelle himself has backed down on this question. Certainly, it is one that needs a great deal of investigation and the work so far is experimental. We should not feel that it is yet ready for clinical application, that it has not stood on the firing line so far.

I suggest that if you are not familiar with it that you read the whole review of it under the special articles which have been published by Dr. Stanhope Bayne-Jones, who is going to make the oration here.

It is of interest in the common cold and the question we have to answer is: clinically what are we going to do about it? And how about cold vaccine? I have carefully vaccinated myself each Fall so I would not get a cold during the hunting season. I have never had any respiratory complications until last year, when after three years of careful vaccination, I got sinusitis. You might argue, therefore, that vaccination is worthless, or you might say, "Well, Jamison did not get pneumonia. It prevented him from getting pneumonia." One of the clinical observations formulated by our forefathers was if you give an opiate at the beginning of a cold, morphine or something of that sort, you can break up the cold. I think that is standing up pretty well under the test of time. The minute you get a cold, a little morphine by mouth will often abort the cold at once. What our forefathers used was Dovers bitters or ipecac.

I enjoyed the paper but want to sound a note of warning about embracing bacteriophage too hastily as it is still too much in the experimental stage.

Dr. B. G. Efron (New Orleans): I would like to ask the essayist why he attributes all the therapeutic benefit to the bacteriophage when he used a mixture of phage and non-specific protein? We understand that non-specific protein may have some beneficial effect on the course of various chronic diseases. Personally, I cannot conceive of a cold per se lasting five years. Undoubtedly some of the chronic coughs reported might very well have been allergic in origin. Before closing, I would like to ask the essayist again how he distinguished the action of the "phage" from the action of the non-specific protein when both were together in the same mixture?

Dr. R. McG. Carruth (New Roads): I very much enjoyed Dr. Hosen's paper. I do not recall ever having had a real "bad cold" since childhood, excepting only several very mild attacks of "flu", and these from mass absorption after several months' exposure during extended epidemics. I do believe very much in bacteriophage, but personally I depend upon my phagocytes and—God. Many years ago, I started a "Methuselah Club", Of course, heredity helps much, but common sense diet and common sense rules of living go a long way.

Dr. Harris Hosen (in conclusion): As to the question about the number of injections given; we give eight injections after finding the dose that causes a local reaction manifested by tenderness, heat or redness.

D'Herelle, the discoverer of bacteriophage, claims that the bacteriophage consists of ultramicroscopic organisms which act specifically upon other organisms. It is not necessary to have the exact strain of bacteriophage in order to get good results. For example, the staphylococcus bacteriophage will act specifically on several different strains of staphylococcus.

Dr. Efron suggested that the good results obtained in this series was due to the vaccine quality and not the bacteriophage action of the entolysate. It is true that in the cases which received injections, the vaccine property was very helpful, but it acted also as a supplementary treatment to the specific phage. In these cases we first used the nasal instillations to test the specificity of the product. The cough in each case stopped or was improved 80 per cent within 48 hours which showed that the bacteriophage was specific. Consequently we used the injections, for then we knew that the vaccine in the entolysate would be specific for the type of organisms causing the infection. From the vaccine treatment we expected to develop immune antibodies which would take care of any future flare-ups which might occur in the presence of chronically diseased tissues.

In about 10 or 15 cases not reported in this paper, we used similar subcutaneous injections after the nasal instillations failed to alleviate or completely stop the persistent cough. The results of this vaccine treatment were very poor.

## PAINFUL FEET*

T. M. OXFORD, M. D.
SHREVEPORT, LA.

It has been said that everyone has trouble with his feet sooner or later and that all adults have deformed feet. Granted that this is only partially true, you will at least agree that there is sufficient trouble to warrant medical interest in painful feet. From the viewpoint of the general practitioner, there are two types of foot cases of especial interest. The first class of patients are those with voiced foot complaints and obvious signs of foot disorders. They would come to your offices more frequently if they received more sympathy and adequate treatment for their complaints. The second type of patient is the one who has symptoms remote to the feet, such as pain in the calf muscles or thighs, backache, headache or nervousness, with almost innumerable complaints. This latter type of case has to be specifically questioned and examined for foot disorders in order to arrive at a correct diagnosis and effective plan of treatment. So numerous are these patients that it would be worth while to examine the feet in the course of every general physical examination.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

General practitioners have opportunities to benefit their patients and themselves and, at the same time, to discourage quacks and irregulars practicing as "foot specialists", if they give particular consideration to their patients' outspoken or vague complaints referable to their feet.

Local and remote pains caused by foot disorders respond to intelligent treatment or advice if the physician has the cooperation of the patient.

Consideration of the feet should include a careful history and clinical examination. For this purpose the questions ennumerated below would be of assistance.

1. Is there pain, swelling or discoloration of the feet? If so, exactly where?
2. Does activity or rest affect swelling or pain?
3. Do the feet ache during the night, or only during daily activities?
4. Are there cramps in the toes or leg muscles?
5. Are there corns, callosities or warts on the feet? If so, at what points?
6. Has there been a pronounced gain or loss of body weight in recent months or years?
7. What types of shoes and socks are habitually worn? Have there been any recent changes of footwear?
8. What is the occupation and environment of the patient?
9. What is the patient's age and condition of general health?
10. Is there any pain in the leg, thigh or back?
11. Is there a history of arthritis involving other joints?
12. Is there a tingling, burning sensation or excessive perspiration of the feet?
13. Is there a history of injury?

### ORDER OF EXAMINATION

1. Observation of the patient's posture, gait and footgear as he stands and walks.
2. With the patient undressed and barefooted, attention should be given to his gait, posture, weight and muscular development.
3. With the patient on an elevated stand and the examiner seated on a low stool, study should be made of the feet at rest and under weightbearing with the following points in mind.
   a. Color of skin and presence of varicosities;
   b. General contour and attitude of feet viewed from the front, side and back;
   c. Position of the toes and heels;
   d. The presence or absence of corns. callosities, bursae, and warts;
   e. Range of voluntary motion in all joints;
   f. Palpation to determine:
      1. Passive motion of all joints
      2. Temperature of skin and response of capillary circulation to pressure
      3. Tenderness over joints, ligaments and callosites
      4. Presence of pulsation in the dorsalis pedis and posterior tibial arteries.
4. Examination of shoes and socks as to size and points of greatest wear.
5. General physical examination.

The abnormalities in the course of taking the history and studying the patients as above outlined will generally fall into one of the following groups.

### CLINICAL GROUPS

A. Postural or static disorders of the feet
   1. Pronated feet
   2. Strained arches (strained ligaments and muscles)
   3. Flat feet
   4. Flattened metatarsal arches, metatarsalgia
   5. Hallux valgus and rigidus
   6. Hammer toes
   7. Ingrown nails
   8. Corns and callosities

B. Traumatic disorders

  1. Fractures
  2. Sprains
  3. Wounds of soft parts
- C. Organic diseases of the feet
  1. Arthritis localized to ankle joint, midtarsal or toe joints
  2. Bone infections
     - a. Osteomyelitis
     - b. Tuberculosis
     - c. Epiphysitis
  3. Soft part affections
     - a. Plantar warts
     - b. Abscesses
     - c. Tenosynovitis
     - d. Adventitious bursae
  4. Circulatory diseases
     - a. Thromo-angiitis obliterans
     - b. Endarteritis (senile)
     - c. Varicose veins
  5. Trophic or nerve disorders
  6. Tumors of bones, tendon sheaths or nerves
  7. Contractures following burns, wounds or infantile paralysis
- D. Chronic systemic disease
  1. Atrophic arthritis
  2. Arteriosclerosis
  3. Diabetes
- E. Congenital and birth deformities
  1. Spastic paralysis
  2. Clubfoot

### STATIC DISORDERS

The commoner foot disorders that we encounter in adults are static or postural in origin, resulting from faulty footgear, incorrect habits of standing and walking, inadequate musculature or increased weight or activity.

Pronated feet are the most common of the postural defects noted in routine examinations of the feet. Probably everyone has some degree of pronation at some time in life. This is an anatomical deformity of the foot, often accompanied by more or less flattening of the longitudinal arch. This, of itself, is not an alarming defect. If allowed to persist, however, it is often the precursor of distressing symptoms of the feet and serious disability. In the growing child, particularly, is this true, as the bones of the feet may become molded to assume a permanent structural deformity. In the adult foot, pain and disability are likely to follow closely the attitude of pronation, especially if the person gains excessive weight, becomes debilitated or suddenly changes to an occupation that requires constant standing. A pronated foot is an abnormal postural attitude amenable to treatment and as deserving of correction as curvature of the spine. It is in the prevention of these permanent changes that the physician can aid nature and thus prevent a potential weak foot.

The treatment of pronated feet is accomplished by two measures. The first step is designed to protect the arch and realign the foot by means of correct shoes with the addition of specific supports built onto or placed inside the shoes. These are to act as a crutch or support until the muscles are strong enough to carry their load. The second measure consists of prescribed exercises which are intended to strengthen the muscles that support the arches and instructions to promote the general health of the individual. In the case of a child who is too young to cooperate by taking exercises, the protection by shoes and supports should be continued as long as necessary. Once a correct position of the feet is maintained by the patient's own muscles, the crutches or supports should be discarded.

Children's shoes should have a fairly rigid sole with no heel or one not more than one-quarter inch high. The correction designed for treatment of pronated feet in children can be placed on the inside. This correction consists of a wedge of felt or hard rubber tacked to the inside sole of the shoe under the heel and instep, varying in thickness on the inner side from one-eighth to one-quarter inch and beveled off to a knife edge on the outer aspect. Oftentimes with the small youngster it is necessary to make the pressure on the inner side uncomfortable in order to make him use his leg muscles on the inner side to pull the foot into the correct position in walking. The same foot position can often be obtained by inserting a leather wedge with its base one-eighth to one-quarter inch thick between the layers of the heels and soles of the shoes, the base of the wedges being on the inner border of the shoes. In the milder cases Thomas heels raised one-eighth to one-quarter inch on the inner side are adequate protection.

The adult shoe should have a fairly thick sole and a rigid, adequately wide shank. As a rule, the heel should not be higher than one inch. The heel seat should be sloping from side to side and gently blended into the shank anteriorly. The inner border of the sole should be on a straight line with that of the heel and there must be adequate room for the toes. The uppers may be low or high quarters, but should fit snugly around the heel and midtarsal region. A lace shoe is preferable because it permits adjustment.

The correction that is added for pronated feet in the adult cases, as a rule, is a support for the longitudinal arch, either of leather or hard rubber, tacked on the sole inside the shoe. For many cases, a Thomas heel raised one-eighth to one-quarter inch on the inner side will give sufficient protection.

Strained arches may be acute and severe, or mild and chronic. Patients with the former type usually come to the physician seeking relief for their feet, while the latter may come with remote complaints and perhaps not mention their feet, if not specifically questioned.

As a rule, the former type of patient will state that his feet are hurting, tire easily and are tender under the arch and, perhaps, ache at night. Oftentimes, upon questioning the patient, you will find that he has recently gained excessive weight, had some acute illness, is suffering from some chronic illness, has recently changed his occupation or environment, or changed from a rigid to a flexible shanked shoe. The patient with chronic, mild strain of the arches will admit practically the same history upon close questioning. His principal complaints, however, may be of undue fatigue, nervousness, pain in the lower back or over one sacroiliac joint, chronic or recurrent attacks of sciatica or pain in the back of the thighs. The signs of strained arches are rather definite. On observation of the patient walking, there may be a limp referable to both feet and a tendency for the patient to sit rather than stand. With the shoes and socks removed and the patient in a standing position, there is usually some pronation of the feet and flattening of the longitudinal arch. In the sitting position, there may be noticeable flattening of the metatarsal arches and pain on attempting to flex or extend the toes. On palpation, there is tenderness over the plantar fascia and the under surface of the tarsal bones. There is also usually tenderness over the metatarsal heads and there may be tenderness over the inner side of the knees and lower back muscles. Dorsal flexion of the ankle is often limited and when performed with the knee extended, produces pain over the hamstring tendons or along the course of the sciatic nerve.

Treatment of the average case consists of a felt pad shaped to fit the contour of the metatarsal and inner longitudinal arches as indicated, the pad being strapped in position with adhesive tape. This constitutes a temporary measure, but when it is followed by partial or complete relief, it confirms the diagnosis of strained arches. The patient is then given instructions about the type of shoes to be worn and, as a rule, is given a prescription for the special shoes and referred to a store and salesman who is accustomed to fitting according to instructions. When the patient has been fitted, he should return to have the size and type of the shoes checked, to have arch supports inserted or to obtain instructions for the shoemaker to make any changes indicated. The proper foot exercises are then taught and the patient is advised to practice these night and morning. As a rule, he is requested to return for observation and adjustment of the supports about once a week until comfortable. Results from the treatment depend to a great extent upon the cooperation of the patient in wearing the shoes prescribed and a systematic following of the exercises.

The term "flat feet" deserves a word of explanation. It describes a foot as being flat, or without arches. In some races and some individuals this is so characteristic that it may be considered normal. Indeed, it must be considered so, because this type of foot is often as strong, if not stronger, than the arched type of foot. We must, therefore, realize that the height of the arches is no indication as to the strength or serviceability of the foot. The flat feet that interest us are those associated with pronation of the heel or forefoot. This is the foot that should normally be arched, but through muscular weakness, the body weight has been carried on the ligaments until they have stretched and the arches have finally flattened. Pain and disability are always associated with this type of flat foot in contradistinction to the normal or racial flatfoot and for this reason, here should be no mistake in diagnosis. The former type needs no treatment. The latter type requires the same measures that are employed to relieve strained arches.

In many cases the conservative methods of treatment described in the preceding paragraphs prove inadequate. For these patients surgical procedures have been devised and are in use which admirably serve to correct the deformity and make a useful foot. Operative correction is most applicable, however, to patients in the adolescent years.

The integrity of the metatarsal arch depends upon the strength of the flexors and extensors of the toes and an even distribution of weight between the heel and forefoot. Fallen metatarsal arches constitute a very important and real finding which is confined almost entirely to female adults. I feel that it is a natural and inevitable result of the universal vogue of wearing shoes with high heels and narrow toes. Metatarsalgia and painful callosities beneath the balls of the feet are the usual accompaniment of flattened metatarsal arches. Patients with these complaints will also very often have contracted heel cords and they suffer from cramps in the calf muscles if they endeavor to wear shoes with low heels.

The symptoms usually described consist of pain in the front part of the feet, cramps in the toes, painful callosities under the balls of the feet and inability to walk in low heeled shoes. On examination there is flattening of the metatarsal arch with the foot at rest.

Treatment should be directed towards protection of the heads of the metatarsals by means of shoes with broad toes and low heels, with a support placed just back of the metatarsal heads. At the same time, the patient should be taught special exercises and how to use her toes in walking so as to regain the normal strength and contour of the metatarsal arch.

Hallux valgus (bunion) is a deformity which to some degree is almost universally present among adult women. It is seldom seen on men's or children's feet. These facts alone make it evident that bunions are the result of ill fitted stockings and narrow toed shoes with high heels.

There are two general methods of treatment, depending upon the severity of the deformity. Conservative measures only may be successful in the milder cases, and, perhaps, will give some relief in the more severe cases. A shoe with a rigid shank and heavy sole, with width across the toe region, E or EE last, and a straight inner border, must be prescribed and carefully fitted. In addition, a metatarsal lift with its maximum thickness placed just back of the first metatarsal head should be fixed in the shoe. A small felt pad placed between the first and second toes is of further assistance in restoring the toe to its normal position. Special exercises to develop the flexors and extensors of the toes and improve the range of voluntary motion in them are most helpful.

For the more pronounced degrees of deformity, there are several surgical procedures, any one of which gives excellent results when performed by a competent surgeon. The operative procedure should be supplemented with careful convalescent care and the constant use of properly fitted shoes.

Hammer toes may occur as a part of the congenital deformity of hollow foot or clawfoot, or as a static deformity, resulting from the use of short socks or short, narrow shoes. The treatment for mild cases of short duration is the use of correct shoes and socks and exercises to restore the strength of the muscles controlling the foot and toes. Correction of the more fixed hammer toe deformities requires tenotomies together with arthrodesis of the proximal interphalangeal joints.

Ingrown nails and various other affections of the nails may be relieved by a competent chiropodist who usually will require several months for careful nail trimming and packing cotton beneath the nail edges. Such treatment will avail little unless the patient abandons the use of narrow toed short shoes and socks. For the persistent intractable case, about one-fourth of the nail and its matrix should be removed. This procedure gives excellent results in experienced hands, provided the patient cooperates thereafter by the use of correct footgear.

Corns and callosities are evidence of misfitted shoes. They are nearly always accompanied by the various anatomical deformities of the feet described in preceding paragraphs. Corns produce the pain which directs the patient's attention to his feet and while temporary relief is often given by the chiropodist who softens and removes the callosities, permanent relief can be had only when the patient wears correct shoes and socks with the addition of properly designed and placed supports.

### TRAUMATIC DISORDERS

The bones of the foot are no less liable to fracture than bones elsewhere in the body. The diagnosis depends upon the history, clinical findings and roentgenograph. This latter diagnostic measure is rather important from the standpoint of diagnosis between fracture and sprain or tearing of the ligaments. I believe the treatment should be practically the same i. e., immobilization, preferably in a plaster cast for two to eight weeks, depending upon whether you are dealing with a fracture or sprain. In the treatment of sprains or torn ligaments, I do not believe that the commonly used adhesive dressing with continued weight-bearing is conducive to healing or a favorable end result. The after care of these injuries to the foot is equally as important as the initial treatment. Weight-bearing should be begun in a properly fitted, correct type of shoe, oftentimes with added arch supports, as indicated.

Certain organic diseases should be kept in mind during every foot examination.

### ARTHRITIS

The most frequent organic lesion is arthritis of one or more joints in the foot. This inflammation may be localized in the joints of the foot or may be only a part of a generalized arthritis. It may be traumatic or infectious in origin. Treatment of the arthritis, whether localized or general should be directed to its cause. For the traumatic type, relief may be given by shoe changes and arch supports to redistribute the weight and splint the affected joint. Infectious arthritis in the feet calls for a careful search for and removal of any focus of infection elsewhere in the body.

### BONE LESIONS

The bone infection most often encountered in the foot is osteomyelitis, but this is seldom of the hematogenous variety. It more often follows wounds of the soft parts and compound fractures. Tuberculosis, syphilis and blastomycosis are occasionally seen. Epiphysitis, osteochondritis and periostitis are occasionally noted and should be kept in mind. The treatment for these various conditions when found in the feet is the same as that used when the same lesions are found in other bones.

### LESIONS OF THE SOFT PARTS

Soft part affections, such as abscesses, tenosynovitis, adventitious bursae and plantar warts occur often enough to be important from the standpoint of differential diagnosis. The accumulations of pus should be evacuated; inflamed tendon sheaths require rest, heat and light massage; adventitious bursae may absorb when relieved from pressure and irritation or may require excision; plantar warts should be exercised or destroyed by the use of radium or roentgen ray.

### CIRCULATORY DISTURBANCES

Disordered circulation in the feet may cause pain and disability resembling the symptoms associated with the various static disorders.

Thrombo-angiitis obliterans, described by Buerger, produces a blanching or redness of the toes with pain and tingling. Senile endarteritis with deficient circulation and consequent intermittent claudication results in symptoms of tired, aching or cold feet. Occasionally varicose veins with poor return circulation produce fatigue, swelling and aching of the feet. None of these conditions will be improved with shoe changes and arch supports. They must be differentiated from static deformities and appropriate treatment instituted for the actual lesion present.

### NERVE LESIONS

The foot may be heir to and show effects of any and all nerve injuries or diseases. Examples of such related deformities, are those seen with the spastic type of paralysis caused by upper motor neuron disease or injury; those associated with the flaccid types of paralysis from lower motor neuron lesions following anterior poliomyelitis or cord injury. Others result from peripheral nerve injury or neuritis and some are purely hysterical in origin. Each of these conditions requires careful differential diagnosis and appropriate treatment.

### TUMORS

Occasionally tumors originating from the bones or soft parts may be found in the feet. These may be benign or malignant and the treatment will depend upon the diagnosis.

### CONTRACTURES

Scar tissue contractures following burns or infected wounds often produce a foot deformity which will require excision of the scar, tenotomy and manipulation, followed by skin grafting procedures.

### CONGENITAL DEFORMITIES

Certain congenital deformities such as clubfeet, supernumerary digits, accessory bones, or bifid toes are relatively rare, but when given correct treatment, result in little or no disability.

### SUMMARY

Prevention of painful feet will require education of the general public concerning the selection of shoes to fit the feet and not to please the eye. Cooperation of the shoe and stocking manufacturers will be needed to make and stress the correct type of footgear, rather than to place emphasis upon the style of footwear. Shoe stores and salesmen can further the preventive measures by making these correct shoes and socks available to the public.

The responsibility of instituting this forward venture towards foot health will, to a great extent, rest upon the family physician. He should deem it his duty to make an examination of the feet a part of his routine and should find pleasure in giving instructions to his patients concerning the care of their feet and the selection of correct shoes and stockings.

If general practitioners and specialists in all branches of medicine and surgery will assist the orthopedic surgeons by listening to patients' complaints referable to their feet and devoting a little more time to foot examination, much can be accomplished toward authentic education of the public in the prevention, care and cure of painful feet.

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## THE SUMMER SEASON

For many weeks Louisiana has been experiencing a long hot spell with very little moisture coming down from the heavens on her fair land. However, at no time has the state suffered from the extreme heat that has been noted in other sections of the country and while the rainfall has been minimal, nevertheless the fields and woods of the state are still a beautiful verdant hue. Our state is doubly blessed; the winters are propitious and the summers are usually delightful. However, there is a certain amount of lethargy in the summer atmosphere, the incidence of sickness falls off and the doctor feels that he is entitled to a brief respite from his professional activities. The month of August is usually the month that vacation time takes place. That the doctor is not so active in his professional routine is obviously seen in the pages of the journal; staff meetings fall off, parish meetings are done away with and these extra professional activities of the physician are deleted for a time. A well earned vacation is due every physician to get away from the petty annoyances of practice, to relax thoroughly and to obliterate from the mind medical thoughts. A change is indicated for every doctor. A happy vacation well spent refreshes one, may add years to his life and certainly tends to improve his disposition. It is our wish that you will have a successful and enjoyable period of summer relaxation.

## THE SCOPE AND CHARACTER OF MEDICAL BOOK REVIEWS

Some years ago the late A. O. J. Kelly, at the time editor of the American Journal of the Medical Sciences, prepared for reviewers of books for his journal a brief description of what a review should be and what it should contain. This short dissertation on reviewing of books is so pregnant with good advice that it might be well to record it here in part. Kelly says that the review of important books should be "descriptive, analytical and critical." There should be considerable difference between a review and a perfunctory book notice. Books that are of minor importance, reprints, new editions which are only slightly revised, should not have extended comment. The first edition of a book of some importance should be reviewed fully and carefully. The main purpose of a review is to inform the reader as to the "nature, character and scope of the book. The review should be, first of all, descriptive. Analysis and criticism are worthy objects of reviewing and should claim a considerable portion of the reviewer's attention—to the end that the reader may have the benefit of the opinion of one qualified to speak with authority." The criticism may be commendatory or derogatory.

The reviewer should be motivated by a spirit of sympathy and kindliness to one who has devoted the time necessary to prepare a book but he should maintain a judicial point of view, giving praise if deserved and condemning if necessary. Kelly says that the good feature of the book should be weighed against the poor and "neither the one nor the other should be magnified."

In this short exposition of the purposes of a book review Kelly points out that the most important feature undoubtedly is acquainting the reader of the review with that which is in the book. After all, if the reader knows the contents of a volume and wants to read the book he probably will have sufficient judgment to determine the merits of the book. Most reviewers have the habit of giving most fulsome praise to a new book just because it is a new book. Extreme laudation or markedly adverse comment, in the great majority of instances, is not necessary. If the book fails in some respect a few words can point out wherein it is lacking. If the book is most admirable a line or two of commendation is all that is necessary.

## ANEURYSM OF THE ABDOMINAL AORTA

Aneurysm of the abdominal aorta is a pathologic state which is quite rare yet time and time again this diagnosis is made in patients with thin abdominal walls and with the ptotic habitus who have dynamic aortas. That the condition is rare may be substantiated by the study by Kampmeier* published this month, of a series of sixty-eight cases of abdominal aneurysm which were in the New Orleans Charity Hospital. There were sixty-eight acceptable cases in a thirty year period, during which time there were 215,516 admissions to the medical wards. Because of its rarity and because of its frequent misdiagnosis Kampmeier's paper is particularly pertinent. Unless the physician is acquainted with the important criteria for diagnosis a misdiagnosis is likely to result.

In this statistical study of abdominal aneurysm it was found in these sixty-eight cases, incidentally the largest group ever collected from one institution, that the ratio of white to colored was approximately 1 to 4, and almost the same proportions are maintained between the female and male sexes. Most of these individuals did hard physical work and the majority of them were between the age of 35 and 45. Two-thirds of the patients were under 45 years of age. Syphilis as the etiologic factor was determined by the Wassermann reaction in thirty-nine instances, of which there were slightly less than 50 per cent positive reactions. A few patients gave the history of a sore on the penis in whom the Wassermann reaction was negative so that actually about 57 per cent had either historical or immunologic evidence of this disease. Very few patients had arteriosclerosis. Tuberculosis was of no import in etiology, nor was trauma, but the majority of the patients had syphilis as the background for the production of the aneurysm.

Pain is the important presenting symptom. Nine-tenths of the patients had this as their chief complaint. The pain was very varied, sometimes it was localized in the abdomen, in thirty-two patients; at times in the back, twenty patients. Of the other sixty patients giving a satisfactory history the pain was scattered here, there and everywhere. This pain was usually referred downward towards the lower extremities, it was constant in twenty-one cases complaining of pain and was intermittent in twelve. No description was available in the other patients. The pain is a severe pain, described as being throbbing, like a knife thrust, or lancinating. Some pictured it as colicky and others said it felt as if it was a stinging sensation.

On physical examination a palpable tumor was found in 60 per cent of cases. This tumor varied considerably in size; in some instances it was small and in others quite enormous. It was associated in most instances with expansile pulsation but a thrill was present in only three cases. In one-half of the patients a systolic bruit could be heard over the tumor. Except for the presence of a mass the physical examination recorded little of moment.

The author stresses the importance of the roentgen ray in the diagnosis of abdominal aneurysm. The important feature is the erosion of the vertebrae without destruction of the intervertebral discs. In thirty-two of the patients in whom the roentgen ray was employed for diagnosis this finding was present in three-fourths of them. The roentgen ray findings, the expansile tumor and the characteristic pain usually suffice to make the diagnosis. Kampmeier points out there are quite a number of other conditions which may mimic this condition of which he is writing but most of them are rare except for the pulsating aorta in advanced arteriosclerosis, or in thin, neurotic individuals.

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*Kampmeier, R. H.: Aneurysm of the abdominal aorta: a study of 73 cases, Am. J. Med. Sci., 192:87, 1936.

It is rather interesting to know that the great majority of these patients died as result of rupture of the abdominal aneurysm. This observation is substantiated by necropsy. Thirty-one of thirty-eight patients who were autopsied showed that death was due to hemorrhage. While there is a sudden sanguination most frequently, a considerable number of patients died as result of slow bleeding. Lastly it might be said that the majority of the patients die within six months from the first appearance of symptoms.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

## HUTCHINSON MEMORIAL CLINIC

*Symposium on Immunology*: Conducted by the Department of Preventive Medicine, Dr. W. H. Perkins presiding.

Dr. Georgiana von Langerman (Department of Preventive Medicine): The controversy regarding the humoral and cellular theories of immunity is now of historical interest only, and it is practically generally accepted that humoral antibodies, as well as phagocytes are lined up in defense of the host. The discussion at present concerns the relative importance of these factors, with the additional consideration, advanced and supported by Reuben Kahn, of the role played by the fixed tissues in the defense mechanism.

Even though the modern trend is to consider the occurrence of antibodies in conditions of actual protection as distinctly subsidiary in importance to cell activity, antibodies are of extreme value in passive immunization, in increasing phagocytosis, and also as diagnostic procedures. Gay, therefore, emphasizes the importance of studying the location and method of antibody formation. He states that even though Manwaring and others have produced antibodies in vitro in the absence of cells in a serum-antigen mixture, cell enzymes are present in serum. He believes that cells form antibodies, but admits the possibility of antibody formation occurring in cell extracts, being formed by cellular proteolytic enzymes from antigens rather than built up from the host proteins. As regards the locus of antibody formation, the most convincing results are those arising from the use of blockade, pointing to the macrophage system as the source. During ten years, 75 per cent of investigators have found variation of antibody formation when blockade is used, usually in the form of a decrease, although an increase has sometimes been obtained. Gay believes the macrophage system to be the source of antibody formation, and considers these seemingly divergent results consistent, claiming that small amounts of dye stimulate the antibody producing cells, and large amounts suppress their activity.

Active Immunity: The few successful instances of transmission of passive immunity has unquestionably engendered an exaggeration of the importance of antibodies in active immunity. Antibodies are invariably present in lower concentrations in actively immune individuals than in the hyper-immune animals used as producers of antiserum, and are in some instances entirely lacking in individuals who are most highly protected against an infection, by recovery. These facts have led to a reconsideration of the importance of the tissues, as contrasted with the fluids of the body, in conditions of active immunity in recent years. Gay and Morrison studied the defensive mechanism of the pleural cavity of rabbits against experimentally produced infection with a highly virulent hemolytic streptococci. They found that when a sterile, non-specific irritant was injected into the pleural cavity prior to the injection of the organisms, granulation tissue resulted with an outpouring of large numbers of polymorphonuclear leukocytes, followed by mononuclears, both in the tissues and exudates. If streptococci were introduced when neutrophiles predominated, the animals succumbed as readily as the controls, but after the mononuclear phagocytes were mobilized, the animal could withstand repeated lethal inoculations, both on the side in which the granulation tissue was, and on the opposite, the clasmatocytes migrating in Gay's "transpleural mobilization".

Passive Immunity: As regards passive immunity, the role of the phagocytes seems at first glance unimportant, in view of the quite evident effectiveness of the antitoxin therapy of diphtheria and tetanus, but champions of cellular immunity have challenged this conclusion. Gay and his coworkers have emphasized the failure of antiserums as directed against bacteria themselves instead of their toxins, with the sole exception of the meningococcal serum, and the effectiveness of this one they attribute to the fact that the site of injection is an area in which a cellular exudate is available, as well as the organism. They attribute the failure in other instances to the absence of sufficient tissue response in the normal recipient to complete the tropinizing effect furnished by antiserum.

Local Immunity: Active local immunity as related to active generalized immunity has afforded an additional ground for controversy. At first it was believed that this phenomenon was a local mobilization of antibodies coincident with a state of general active immunity, but it was soon found that local immunity could be produced without generalized protection of other areas. Opie concluded that on injection of antigen into tissues, the resultant antigen-antibody complex acts as a tissue irritant, resulting in an inflammatory reaction. He observed that antigen injected into the skin of normal rabbits passes rapidly into the blood, whereas antigen injected into immune animals is fixed at the point of injection. Stuppy, Cannon and Ralk protected the respirator tract of rabbits against intrabronchial insufflation of pneumococcus by spraying the throat with the organisms, without evidence of generalized antibody production, but with an outpouring of clasmatocytes. These facts indicate the importance of the macrophage system in local immunity, but even Gay and his adherents grant the necessity for additional information before admitting or denying the presence of an adjuvant tropin effect as in generalized immunity, or whether the macrophages are solely responsible.

Kahn's Theory: The significance of the tissues in a study of local immunity would be incomplete without a consideration of the recent work of Reuben Kahn, in which he challenges the concept of the role which antibodies play in immunity, and the interpretation of the part taken by the fixed tissues in bacterial invasion. He confirmed the fixation phenomenon of Opie, and also the lack of parallelism between skin reaction and circulatting antibodies. He interprets these phenomena as indicating that "tissues develop the capacity to combine with antigen independent of antibody". Kahn also questions the conception that the fixed tissues, although bacterial invasion usually primarily involves them, are in a hypersensitive state to the very organisms against which the protective forces of the fluids and phagocytes are directed. His experiments showed that not only does the tissue react with antigen independent of serum precipitins, but that the various tissues possess the ability to do so in different degrees. He calls attention to the fact that the inflammatory responses of a tissue, such as the skin, to injected organisms seems to be basically a specific response to protein, and that while exotoxin and endotoxin may influence this response, it is not eliminated in their absence. He states that in the tissue reaction of skin upon injection of an antigen, there are seven phases, which while inseparable from one another, are still definite:

1. Combination between antigen and tissue.
2. Localization of antigen in areas of injection.
3. Alteration in tissue.
4. Inflammation at the area of injection.
5. Destruction of antigen in area of injection.
6. Elimination of end products locally.
7. Healing of tissue.

Kahn considers the study of tissue responses in immunity as including four states: the non-immune, incubation, immune, and dis-immune.

The *non-immune state* is that in which an animal does not possess a capacity for combining with, localizing, and destroying antigenic substances by means of the inflammatory reaction. The animal lacks the capacity for specific tissue response.

The *state of incubation* is that which is found as soon as the tissue cells of an animal come in contact with a foreign protein, the skin acquiring some specific combining capacity for antigen within two days after an immunizing injection, indicating that the property of tissues to react with antigen may be one of the earliest manifestations of the oncoming immune state.

The *immune state* is the period when the tissues have developed their capacity of reacting with antigen. This capacity was found to be influenced and modified by many conditions—chemical composition and physical, the amount injected, the route of injection, frequency, and age of the animal.

The name *dis-immune state* is that applied by Kahn to the state found to occur following the intravenous injection of antigen into an immune animal, after which an additional dose of antigen into the skin was found to produce no local inflammatory reaction. The tissues have lost their capacity to specific response, and the antigen diffuses as in the non-immune animal. The dis-immune state is the reverse of the immune state, and only an immunized animal can be dis-immunized. One outstanding feature of the dis-immune state in rabbits is its short duration of a few hours to a day, and the fact that it appears to be a strong stimulus to the animal to revert rapidly to the immune state. Kahn points out the possible relationship between the dis-immune state of rabbits and anaphylactic shock in guinea pigs.

In studying the relation between specific tissue response and antibodies, Kahn found that animals immunized with vaccines of staphylococcus, streptococcus and colon bacillus, show gradual increase in the skin capacity to produce tissue response, while the antibody response to these organisms is slight. He also found that the capacity of the tissues to respond to injected protein antigens appears before precipitins can be found in the serum, and remain for months after the precipitins have disappeared. He therefore concluded that "the basic change as a result of immunization takes place in the tissue cells", and that apparently "antibodies represent a secondary manifestation of immunity", and "that the primary manifestation of immunity centered in the tissue cells".

Kahn also opposed the use of the term "local anaphylaxis" in denoting specific tissue response, stating that it is really the reverse reaction, as a prerequisite of anaphylactic shock is dissemination of antigen throughout the body, while tissue response is a phase of immunity and anaphylaxis of dis-immunity.

Allergy in man, Kahn also explains in the terms of local tissue response. He postulates that so-called allergic manifestations shown to non-bacterial elements such as pollens, may be similar to the reactions of the skin, and nasal mucosa, to infectious organisms and their products. He believes that in the allergic individual we may be dealing with some disturbance in the immunity regulating mechanism, and that the "desensitizing" effect of minute doses of substances may be in reality due to an increase of the immune state.

In conclusion Kahn believes the union between tissue and antigen is of the same immunologic nature as that between phagocytes and antigen, or immune serum and antigen in vitro. The specific tissue response is not considered as an expression of hypersusceptibility, but is interpreted as one of the most important defense mechanisms of the immune animal against bacterial invasion.

Dr. Perkins (Department of Preventive Medicine): I am presenting the opposite of Dr. von Langerman's review by summarizing the humoral viewpoints as expressed by Wilson, Topley and Zinsser. Topley says that we are dealing with terms which are mystical in character and are using such terms as lysin, agglutinin and precipitin, without knowing what they are. Their impression is that these are all simply end processes, they are not entities within themselves. They are mechanisms which result in the phenomena which we call agglutinations. They say we have degrees of immunity ranging from zero to complete immunity. The word immunity is, itself, a poor word. There are some animals which cannot be made immune or be infected by certain organisms. In them, immunity in the sense in which we use it, is not present. In our terms it is zero, because the organism cannot affect the animal concerned. On the other hand, we have organisms which can be infected by the invading organism, and we have complete immunity. The two terms most commonly used in the conception of immunity are antibody and antigen. The most recent experimental work in immunity has been directed toward endeavoring to discover the nature of the antigen. The sum of this work reveals the fact that antigen is always a protein or contains protein and is made up of two parts, a protein component and another which may or may not be protein and is called a hapten. This latter may be one or more types of definitely known chemical substances particular to the specific antigen concerned and has certain known functions and powers. Any organism which is able to produce immunity in an animal contains certain haptens. These are incapable of producing immunity reactions in vivo. The protein component with which it is combined is the immune antibody stimulant. The response occurs in the blood stream. The antibody is always a globulin, a pseudoglobulin or euglobulin. Antigen antibody reaction is the surrounding of this hapten with the globulin in a definite way depending on the spatial molecular structure of the hapten and globulin. It is this special chemical characteristic of the hapten which can combine with the globulin which determines the specificity of the immunity. The same workers have carried this question of the antibodies still further—they have tried to determine what they mean by the phenomena of agglutination and precipitation. The first hint to the solution was found by Weil and later revised by Weil and Felix. They found that some flagellated organisms under certain conditions of growth lost their flagellae. They called these the "ohne hauch" (o), forms, i. e., without the flagellae. By carrying on in vitro and in vivo experiments with these organisms, they determined that the flagellum cells contained both hapten and the protein component. So in the presence of flagella they gave immune reaction; in the absence of flagellae they gave another kind of immune bodies. Then came the work of Arkwright who first described the change in growth forms of micro-organisms which turned out to be our present dissociation types. They investigated further on smooth and rough colonies and found that the smooth were the more virulent of the two. The original hapten had disappeared in the S-R change. Therefore, the antibody reactions were different. With that clue the question of the location in the organism of the flagellar and somatic antigens arose. The sum of their investigations on this question are as follows: that the whole question of antibody-antigen relationship resolves itself into the fact that haptens act specifically as antibodies because of their physical-chemical structure; that the combination with antibody occurs on some part of the organism. When it is on the flagellar hapten they precipitate because the antibody and hapten are in solution. When agglutination takes place it is because we are dealing not with substances in solution but with haptens still bound to the surface of the bacteria. When the antibody combines with surface haptens it sets up electrolytic changes in the cell-membrane and we see then not the neutralization of antigens in solution but the precipitation of the entire organism. The explanation is the same when lysis occurs. As exemplified in the hemolysis of red cells the haptens are in the cells. These with their protein component produce antibodies. In this case there is also the normal complement in the blood stream which in the presence of the antigen-antibody combination is able to act on the red blood cells, changing their permeability to hemoglobin. Opsonins are explained on the same principle. The antibody reaction again influences the surface membranes of the organism and makes it in some way more susceptible to phagocytic action. Lysins, precipitins, agglutinins and opsonins are now placed on a chemical basis; they are end processes and have disappeared as distinct entities.

Dr. Robert A. Strong (Department of Pediatrics): Interest in the immunology and epidemiology of whooping cough may be said to have started with the discovery of the bacillus, which for many years was believed to be the specific etiologic factor, by the Belgian investigator, Bordet, in 1906. Shortly after this discovery, vaccines were made from pure cultures of this organism alone or in combination with the organisms comprising the flora of the upper respiratory tract. They all proved to be quite valueless as prophylactics or therapeutically after reasonable trial. Their use was continued, however, by a small group who wrote enthusiastically concerning them, but the very nature of the supporting evidence of their value, which was mentioned in these few contributions, left no other impression but that the writers were fundamentally uninformed on the immunology of pertussis or that they were intellectually dishonest. Interest did not wane, however, and in about 1932, Gardner and coworkers, supported by Toomey and others, emphasized the importance of the hemolytic and toxic or active type of the bacillus. This, in a large measure, initiated the development of the vaccines which are being used at the present time both for prophylaxis and treatment of whooping cough.

Any discussion of this subject, however, would be incomplete if mention was not made of the use of a *B. pertussis* vaccine as an immunizing substance, by Madsen during an epidemic in the Faroe Islands in 1929. Madsen reported that of 1,832 vaccinated children, 458 or 25 per cent did not contract whooping cough; of 446 non-vaccinated children eight or less than 2 per cent escaped infection. He considered these results favorable and attributed them to the use of young strains of *B. pertussis*, a total does of 22,000 million bacteria and the completion of vaccination shortly before the onset of the epidemic.

Just about the same time Sauer began working with the view of developing an effective vaccine for the prevention of whooping cough. Between 1928 and 1933, over 300 young, non-immune children were each given hypodermically a vaccine containing between 70 and 80 billion bacilli. Over 1600 injections were given. In no instance was a severe local or systemic reaction noted. The vaccine was prepared from five to seven strongly hemolytic, recently isolated strains of *B. pertussis* grown on Bordet medium, made with human blood. A fresh supply was made every few months. The forty-eight hour growth was scraped off and suspended in 0.5 per cent phenolized normal salt solution. When sterility and purity were insured (after a week in the refrigerator) by culture on three successive days and examination of stained smears, it was diluted with 0.5 per cent phenolized normal salt solution so that 1 c.c. approximated 10 billion bacilli. Syringes and needles were sterilized in the hot oven. A total of 7 to 8 c.c. was given to each child.

Sauer's vaccine is now widely distributed and the results which have been obtained with it in the prevention of whooping cough have been most encouraging. Sauer has repeatedly emphasized that he claims no value for his vaccine in the treatment of whooping cough. Several commercial laboratories have been licensed to make his vaccine from freshly isolated hemolytic strains which are sent to them each month. The total dosage after six months of age is 8 c.c. The vaccine is administered as follows: 1 c.c. is injected just under the skin in the deltoid region of each arm or preferably in the buttocks; one week later, 1.5 c.c. is injected in the biceps region of each arm; one week later, 1.5 c.c. is injected in the triceps region of each arm.

Because of the fact that 50 per cent of the deaths from pertussis occur in the first year of life, the best age for immunization is obviously between the seventh and tenth months. Reactions to the injections are chiefly local, although a transient rise in temperature may occur within from four to thirty-six hours after an injection. No reaction has been severe enough, however, to necessitate the postponement of the subsequent injection.

The second vaccine which has attracted attention since there has been a renewal of interest in pertussis vaccines, is that which has been prepared by Krueger of the University of California. He called attention to the role of what is spoken of as "denaturation reactions" in altering the antigenicity of bacteria during the physical and chemical manipulations incident to preparation of vaccines. Two preparations of Krueger's vaccine are available at the present time: one is known as the pertussis U. B. A. (undenatured bacterial antigens) and pertussis mixed U. B. A., which also contains the undenatured antigens of pneumococci, streptococci, H. influenzae, M. catarrhalis, and staphylococci. A mixed antigen is preferred by some physicians in their efforts to prevent and treat the disease with this vaccine, because invariably we have to deal with the upper respiratory bacterial flora in addition to the pertussis organism. As yet, neither of these vaccines has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. The Council feels as others do that the progress made with the use of these vaccines has been encouraging, but they are waiting for more convincing proof. Sauer makes no claims that his vaccine has therapeutic value and the results so far obtained with his vaccine as a prophylactic are gratifying. On the other hand, claims are made for the Krueger vaccine in both the treatment and prevention of pertussis. As a preventive measure it compares favorably with Sauer's vaccine, but its value in treatment is unproved. Recently interest has been awakened in the virus theory of the etiology, and animal transmission studies are now in progress in Baltimore. We can only live in hope that we may soon obtain an effective means of combatting whooping cough. In the meantime, the use of the Sauer vaccine prophylactically should be continued.

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## J. T. NIX CLINIC

### New Orleans

At a meeting held in July, Doctor Monte F. Meyer presented the following paper.

## SOME INTERESTING PHASES OF THE RECENT INFLUENZA EPIDEMIC, WITH A CASE REPORT

The epidemic of influenza, which occurred during the early spring months, was the most severe since the epidemic during the World War. It was confined mostly to children. It was only due to our isolated method of living that the spread was not greater. However, in many cities and towns throughout the adjoining states, schools, theatres and even churches closed to prevent the epidemic from increasing.

One of the most noticeable effects was the attack on the upper respiratory tract. It affected the throat, sinuses and the ears. Pheumonias were not uncommon, but complications, such as empyema, were rare. In one private institution alone, Hotel Dieu, there were more mastoidectomies performed during this period than during the whole existence of the hospital. There were many complications of mastoid infections, among them, sinus thrombosis and meningitis. This is the first time that we have seen such violent ear infections in this community, and every case of acute otitis media was potentially a mastoid. While influenza organisms were not recovered from the middle ear or mastoid, the usual germs were pneumococcus or streptococcus. Blood cultures were frequently positive for streptococcus. The mortality was fortunately very low, despite the apparent intensity of the infection. I believe that the coming winter months will reveal many sinus conditions in children which owe their origin to this epidemic.

The following case report with autopsy findings will attest to the severity of the infection.

### CASE REPORT

I was called in consultation to see a boy, R. M., aged 12, rather poorly developed, who gave a history of having an attack of influenza which began four weeks previous. He remained in bed one week without medical attention; apparently improved, and returned to school. After staying in school for three days, his fever recurred, he went back to bed and finally a physician was called. Two weeks later he developed a severe earache (right ear) with a spontaneous rupture of the eardrum, and drainage from the middle ear ensued. The pain subsided for twenty-four hours, then recurred with chilly sensation and the temperature ranging from 100° to 104°. The mastoid became tender and some vomiting occurred.

At this time, I found the right ear draining profusely; marked tenderness over the mastoid antrum on gentle pressure; no edema of the skin or thickened periosteum (mastoid). There was also pain along the right sternocleidomastoid muscle (over the juglar vein). No enlarged glands could be palpated. The neck was painful to motion but no rigidity was present.

A tentative diagnosis of lateral sinus thrombosis complicating acute mastoiditis was made and the child sent to the hospital via ambulance for operation. Roentgen ray showed marked destruction of cells but the sinus plate intact (Fortier & Gately).

Operative record—April 19, 1936: Acute mastoiditis, right; right mastoidectomy; Drs. M. F. Meyer and Val Fuchs.

Antrum was found full of pus, tip cells and peri-sinus cells. The bone over the lateral sinus was found hard and it was decided not to open it as it seemed intact. A rubber tube drain was inserted.

Several days after this operation the child's condition had not improved as would be desired. Consultants were called and diagnosis of probable involvement of the lateral sinus and internal jugular vein was made. The patient was taken to the operating room and the lateral sinus opened.

Operative Record—April 25, 1936: Lateral sinus thrombosis, right side; opening of lateral sinus: resection of internal jugular vein: indirect blood transfusion; Dr. James T. Nix.

A three inch incision was made along the anterior border of the sternocleidomastoid musle. As soon as the deeper structures were met there was evidence of a rather acute inflammation. Several glands were found which were apparently normal. It was difficult to locate the internal jugular vein because the vein was collapsed. It was entirely free from blood. It was resected up to the jugular bulb and down as far as the subclavian. In the upper portion of the vein pure pus was found and thrombi below and above. No free bleeding was found as far down as the probe could be passed into the subclavian. Upon attempting to resect the vein high up the vein was so necrossed that it actually pulled off and the upper end could not be located. An iodoform pack was placed high up in the wound to prevent any bleeding from the torn end of the vein. The muscles were sutured with No. 0 chromic catgut, Michel clips for the skin.

Right Mastoidectomy: Drs. M. F. Meyer, Val Fuchs and Geo. Taquino.

The mastoid was reopened. The lateral sinus was found covered with hard bone which had to be chiseled away. A small iodoform pack was placed below and above between the lateral sinus and the bony covering. The lateral sinus was then incised with a Graefe knife and no free bleeding encountered. With curet, clots were scooped out from as low as the curet would reach to the jugular bulb and as high up as the sagittal sinus. When the upper pack was slightly moved some free bleeding ensued. The pack was replaced to prevent further bleeding and to obliterate the lateral sinus. At the upper junction of the lateral sinus, pus was encountered in the region of the dura, probably a small subdural abscess. Iodoform pack placed in wound and no attempt was made to close the mastoid incision.

Progress: Three blood transfusions were given to patient. His temperature ranged from 97° to 106°. Chilly sensations persisted from the time of admission to the hospital until death. On April 26, 1936, the patient developed a slight cough, which grew steadily worse. Roentgen ray on May 4 showed a thickened interlobar pleura, right side; irregular areas of increased densities throughout the lower right lobe; irregular area of increased density, left base, due to pneumonia. The patient began coughing bloody, purulent matter. Roentgenogram on May 12 showed findings to be those of pneumonia with evidence of lung abscess. On May 18 roentgen ray showed pneumonia surrounding lung abscess; no evidence of free fluid in the right pleural cavity. On May 20 a roentgen ray plate was taken which showed diffuse pneumonia in the mesial two-thirds of practically the entire left lung. On June 1 roentgen ray showed an extensive pneumonia of the left lung; chest findings on the right side were unchanged. No attempt was made to drain the lung abscesses because of the cough which persisted and grew steadily worse. It was feared the patient could not stand the shock. The child began to become stuporous on June 2, voiding involuntarily. The condition progressed from bad to worse and the patient expired on June 3 at 4;15 a. m. For a period of two weeks after the second operation the condition improved and it was thought the child had a fairly good chance to recover, but when the pneumonia and lung abscess developed, the patient grew steadily worse until his demise.

A complete autopsy was performed but because of lack of space only the salient points are given. Both pleural cavities were filled with pus. A large abscess, the size of a golf ball, was found at the base of the right lung surrounded by smaller abscesses. On the left side about 200 c.c. of a thick greenish colored pus was found in a pocket immediately behind and to the left side of the pericardial cavity and heart. The pulmonary artery was opened in situ and no ante mortem clot was found, but the superior vena cava was found thrombosed from the right auricle up to its bifurcation in the neck where the thrombi extended into the smaller vessels. The calvarium was opened and the brain removed. On removing the brain a large abscess in the temporosphenoidal lobe on the right side ruptured and approximately 70 c.c. of pus was discharged from its cavity. On tracing this abscess it was found that it had previously ruptured in the right lateral ventricle and from this point had penetrated into all other ventricles, where pus was found mixed with the spinal fluid. The basal ganglia were also covered with a purulent fibrinous exudate. A probe passing from the mastoid incision through the necrotic bone struck upon the spot where the abscess was found. The lateral sinus and the deeper veins of the brain were all thrombosed. The thrombus in the sinus was well organized from the point where it had been severed, downward for several centimeters. The other sinuses were carefully examined but none were found thrombosed.

Final Diagnosis: Acute mastoiditis; septic bronchopneumonia; pleurisy; abscess of the right lung and localized empyema of the left pleural cavity; abscess of the brain; toxic hepatitis, nephritis, and splenitis.

### SUMMARY

1. The bone over the lateral sinus at the time of the primary operation was hard and the lateral sinus not opened because it seemed intact and the chilly sensation thought due to other causes.

2. No positive blood cultures were found although twenty cultures were taken.

3. Despite the amount of pus found in the chest and brain, clinical signs and symptoms did not bear this out.

4. The roentgen rays were unable to give definite signs of the amount of pus in the chest.

5. The severity of the infection, which probably started in the nasopharynx, was carried into the mastoid and jugular vein at the same time.

I wish to express my thanks to Doctors Nix, Signorelli, Taquino and Fuchs for their kind assistance and consulation.

## OSCAR ALLEN TUMOR CLINIC
## CHARITY HOSPITAL
### New Orleans

The scientific meeting of July was called by Doctor James T. Nix, Director. The essayist was Dr. Blaise P. Salatich, who presented the following paper:

## FREQUENCY OF ORAL CANCERS

Cancers of the oral cavity and corresponding structures have been for a long time quite a problem for both the dental and medical clinician. For thousands of years, cancer has taken its toll of human lives without much consideration of race, sex or class.

Although great strides and advancements have been made in the field of cancer therapy, the oral and soft tissue neoplasms still claim a very large number of victims, not only by their extensive destruction in growth and development but even quite frequently terminating the life of their host.

Only one who actually comes in contact with the large number and varying types of mouth cancers can readily observe the terrible conditions that some of these cases present. Few people realize the frequency of neoplasms found in the oral cavity and surrounding tissues and structures. They often overlook the close relationship between sex, habits, chronic inflammation and cancer itself.

As a distinct and separate entity, the mouth ranks amongst the leaders for occurrence of malignant tumors, having been shown by statistics of the United States Cancer Bureau, to be surpassed in number only by the stomach, female genital organs and rectum. Cancers of the mouth occur five times more frequent in men than in women, but these proportions pertain to the lips, tongue and floor of the mouth particularly.

Malignant growths of the oral cavity are credited with a higher mortality rate than that of skin cancers, although these figures vary in different parts of the civilized world. In parts of China it has been found, by actual survey, that mouth cancers stand first on the list of malignant tumors. These varying conditions present in different parts of the globe can be explained in a number of ways, but foremost in importance is the fact that in the areas of a high mortality rate and frequency of occurrence, we find a deplorable and often complete lack of oral hygiene. In various countries having a high frequency rate, on examining the cases that present themselves, a filthy germ laden mouth is observed, also being accompanied by badly decayed, sharp edged roots and teeth. These existing factors are the prime and predominating causes of almost every oral tumor.

These people living in countries that are lacking in educational and health facilities, together with a state of extreme poverty and want, can offer an excuse for their lack of coordination in attempting to treat these existing malignant conditions, but the population of the United States in general is very often to blame for the lack of interest and determination in trying to overcome this pitiful and too often fatal condition.

In a large majority of cases the layman or patient is responsible and to blame for the disastrous prognosis of his or her affliction, by the unnecessary waiting or postponement of a visit to a proper clinician, and only doing so when the tumor has become so large and involved that it actually interferes with and prevents normal functions of the mouth and parts.

It is astonishing to observe the large number of cases that present themselves to the dental and medical clinician only after the neoplasms have been allowed to grow and include a great portion of the surrounding soft tissues, and have also decreased and reduced their chances of a favaroble prognosis by allowing metastasis to occur. If these patients had consulted a clinician or cancer clinic when the growth first made its appearance, quick and prompt treatment with the various proved methods of cancer therapy at hand, their chances of complete recovery would have been somewhat promising, but instead they are almost doomed due to their own stubborn negligence. Fear of the truth about their condition very often will keep a patient having an oral tumor from applying for diagnosis and treatment. This situation is found not only in the mouth cases but in tumors throughout the human body. These types of patients who try to fool themselves into thinking that the mass or sore present is not very serious and will probably disappear of its own accord without any treatment, reminds one of an ostrich attempting to hide himself from view by burying his head in the sand. He is only fooling himself and does not fully realize the fact.

The layman does not realize that cancers of the mouth do not just occur, but very often can be connected with some type of irritating and stimulating factors. Loose teeth allowed to remain in the mouth for a long period of time have been found to be responsible for a cancerous growth surrounding the tooth socket by its constant irritating and traumatizing effect. Loose and ill fitting bridge work and dentures also cause a very large number of epitheliomas of the delicate mucous membrane found in the oral cavity.

Only slight irritation over quite a long period of time will very often result in the formation of a malignancy of the part involved. Chronic inflammation and oral sepsis with poor hygiene also are responsible for their share in mouth tumors. These tumors caused by the various antagonizing factors are very often benign in their incipiency and remain so, for a long period of time, but as the patient advances in years and the irritating condition is allowed to remain, together with their entering into a somewhat susceptible stage, this supposedly harmless mass then begins to grow quite fast and continuously and attains a very large size causing functional embarrassment and pain before medical advice will be sought. The removal of these small masses, together with the relief of the causative factor, would very often afford a favorable prognosis, but with its development into a lethal malignant growth having no consideration and quite determined in its destruction, the outcome is very often disappointing and discouraging.

A very frequent precancerous lesion found in the mouth is a condition termed leukoplakia buccalis. This condition is characterized by whitish-grey elevations or patches found generally on the inside of the cheek usually along the occlusal line of the teeth. These plaques may be treated with various strengths of radium and deep roentgen ray therapy, but the most important consideration is the removal of the traumatizing factor generally present and also the close observation by the attending clinician from time to time. These leukoplakia patches are found most frequently in men and these being found in the presence of heavy and excessive smokers accompanied with poor oral hygiene.

Syphilis also is very often associated with malignant lesions found in the mouth and surrounding parts, Fox having found that sixty-five per cent of these cases had syphilis. Very often a lesion of the tongue or inside of the cheek is treated for syphilis, but is actually an ulcerated type of epithelioma that has become, through development, a case of syphilitic leukoplakia.

The patient alone is not to blame in some cases of negligence in the unnecessary development of an oral malignancy. Many dental and medical clinicians do not fully realize that all these large ulcerated and proliferating growths and masses started from a small lump or lesion and that as an efficent clinician, he must be on a constant lookout for the presence of these very early tumors, and by either their complete removal or microscopic examination of a section can better treat and prevent the neoplasms from obtaining a firm foothold and probably saving the life of his patient. A biopsy is the only definite fool proof method of determining the type of growth present, whether benign or malignant and if so its grading, and a better determination of a successful treatment.

Space does not allow me to cover fully the subject of oral concer frequency but only permits the touching upon the important and surprising facts of these conditions.

### CONCLUSION

Although the cancer clinician and research workers are moving forward at a constant and gratifying rate, the subject of oral malignancy will always be a somewhat discouraging one if the layman and general public are not sufficiently educated and rendered cancer-minded so as to enable them, at the first signs of a persistent mass or sore that does not respond to usual treatment, to apply to their local physician, dentist, tumor clinic or hospital for examination, diagnosis and treatment and thereby give the clinician an advantage over such a serious destructive death-causing condition as cancer.

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## HOTEL DIEU

The regular monthly meeting of the Hotel Dieu Staff was held on Monday, June 15, 1936 at 8 p. m. in the Nurses' Lecture Room of Hotel Dieu.

The meeting was called to order by the President, Dr. E. H. Walet, with the Secretary, Dr. J. A. LaNasa, at the desk.

The Scientific Program consisted of:

1. Anthrax (Case Report), by Dr. J. A. LaNasa. Discussed by Drs. Gorman, Bacon, Jamison, Couret, and Walet.

2. Modern Trend in Obstetrical Anesthesia and Analgesia with Special Reference to the Use of Epidural Analgesia, by Dr. P. Graffagnino. Discussed by Drs. Danna, Jamison, Walet, and Levy.

3. Some Interesting Developments in the Management of a Case of Carcinoma of the Rectum, by Dr. J. A. Danna. Discussed by Drs. Gorman, Jamison, and Graffagnino.

A recess of one minute was ordered by the Chairman after which the meeting resolved into Executive Session. The meeting was then adjourned.

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## NORTH LOUISIANA SANITARIUM

The Staff meeting was called to order on June 26, 1936, by the President, with 23 members present. After disposal of routine business, attention was turned to the scientific program.

Dr. Kerlin, in a few opening remarks on Dr. Heard's case report, mentioned that he was called to see an 11 year old boy who was running fever. On entering the room he was struck with the tumultuous action of the patient's heart and pulse and on further examination observed a flushed face and exophthalmos and suggested a diagnosis of exophthalmic goiter, requesting further study. A basal metabolic rate at that time was plus 52. Dr. Kerlin advised surgery as the best procedure for a cure. Dr. Heard considered the case as a typical exophthalmic goiter. The basal metabolic rate was rechecked on two occasions, being plus 12 and plus 48 respectively. The patient was put on Lugol's solution for three weeks, at the end of which time a double polar ligation was done because the pulse rate remained elevated. The patient had a marked reaction following the ligation. Two weeks later, the patient was again put on Lugol's solution and in about two weeks, when the patient was well under hypnotics the "thyroid was stolen." Postoperative recovery was uneventful and up to date the patient is doing fine. The case was discussed by Drs. Wolfe and Cassity.

Dr. Herold showed a case of chronic glomerulonephritis with a marked anasarca that became progressively worse under the usual nephritic regime of low protein, salt-free diet. When placed on a high protein diet the patient began to improve rapidly and became edema free. The case was discussed by Dr. Gowen.

H. M. Trifon, M. D., Sec.

### TRI-STATE HOSPITAL

The regular monthly meeting of the Staff was called to order on June 25, 1936, by Dr. J. E. Knighton, Sr. Routine business was transacted, and the report of the examiner from the Committee on Education and Hospitals of the A. M. A. was read. It was pointed out that only an increase in the autopsy percentage seemed necessary for complete approval.

A very interesting case report was presented by Dr. W. B. Allums. The patient, a white male aged 58 years, complained of urinary frequency and of a tumor mass in the lower left abdominal quadrant. The history revealed right nephrectomy 18 years ago, but nothing else of note. Examination revealed good nutrition, and no abnormal findings except the tumor mass above mentioned. This was not large, but easily palpable. Proctoscopic examination revealed an obstructive lesion at the recto-sigmoid junction, verified by barium enema. There was only partial obstruction to downward peristalsis. Cystogram showed a semi-lunar pressure defect in the upper left portion of the bladder, and several large stones were present in the left kidney.

A diagnosis of malignancy at the recto-sigmoid junction was tentatively made, and operation advised. Ten days later the patient returned to the Hospital for surgery, and, at this time the tumor mass was found markedly reduced in size. Roentgen ray check up was reported favorably, and operation deferred. Diagnosis was altered to diverticulitis, with inflammatory mass causing partial obstruction. Doctors Knighton, Sr. and Jones aided in the presentation of the case, and it was discussed by various members of the staff.

After consideration of the statistical report the staff recessed until September meeting.

J. E. Knighton, Jr., M. D., Acting Sec.

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of August practically all of the hospital staff meetings will be adjourned for the summer, consequently no calendars will be published.

At the Scientific Meetings of July 13, a paper was presented by Dr. Neal Owens entitled Treatment of Varicose Ulcers of the Lower Extremity. This paper was discussed by Drs. J. Ross Veal and H. R. Mahorner. The other paper on the program was presented by Dr. George W. Robinson entitled The Local Use of Quinine in Ophthalmology. This paper was discussed by Dr. Charles A. Bahn.

At this meeting the reports of the Special and Standing Committees were read.

### MERCY HOSPITAL

The June meeting presented a Symposium on Appendicitis. This was participated in by Dr. Phil. C. DeVerges who discussed appendicitis in the child; Dr. Max Green, the urologic aspects of appendicitis; Dr. Edwin L. Zander, appendicitis in pregnancy; Dr. L. J. Hanckes, surgical aspects, and Dr. George H. Hauser, the pathologic aspects of appendicitis.

The Woman's Auxiliary of the Orleans Parish Medical Society is cooperating with the Tuberculosis and Public Health Association of New Orleans is planning a health education campaign in schools of New Orleans the coming fall. Mrs. Francis E. LeJeune is Chairman and Mrs. H. B. Gessner is Vice-Chairman of this cooperating committee.

### NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

Dr. Thomas B. Sellers was selected first President of the New Orleans Graduate Medical Assembly; Dr. Lucien A. LeDoux, Vice-President; Dr. Wm. H. Gillentine, Secretary; Dr. Francis E. LeJeune, Treasurer and Dr. Frederick L. Fenno, Director of Clinics. The Executive Committee consists of Drs. Philips J. Carter, Amedee Granger, Urban Maes, John H. Musser and Alton Ochsner. The present plans are to hold this assembly March 17-20, 1937.

### PROMOTIONS AT CHARITY HOSPITAL

Dr. Arthur Vidrine, Superintendent of Charity Hospital, announces the following promotions: Drs. J. G. Stulb and L. J. Dubos from Visiting to Senior Visiting Physicians; Dr. H. B. Gessner from Senior Visiting Surgeon to Consultant: Drs. O. C. Gassergrain and D. J. Murphy from visiting Surgeon to Senior Visiting Surgeon; Drs. David Adiger, P. L. Danna, A. N. Owens and C. J. Tardo from Assistant Visiting Surgeons to Visiting Surgeons; Dr. Hillard E. Miller from Visiting Surgeon to Senior Visiting Surgeon; Dr. Felix A. Planche, Senior House Surgeon, was appointed Visiting Surgeon.

Drs. D. J. Graubarth and Neal Owens spoke at the meeting of the Harrison-Stone-Hancock County Medical Society at Biloxi, July 1.

Dr. Robert A. Strong was a guest speaker at the Mississippi State Pediatric Society, Jackson, July 2.

Drs. I. M. Gage and Chaille Jamison spoke to the staff of the Field Memorial Hospital, Centerville, Mississippi, July 9.

Dr. Alton Ochsner addressed the Chattanooga Surgeons Club and the Chattanooga and Hamilton County Medical Society, Chattanooga, Tennessee, July 14-15.

Dr. J. H. Musser was the guest speaker at the Lehigh Valley Medical Society meeting, Pocono Manor, Pennsylvania, July 15.

# LOUISIANA STATE MEDICAL SOCIETY NEWS

## OFFICERS AND COMMITTEES OF STATE SOCIETY

In the June issue of the Journal, editorial comment was made concerning the new officers that had been elected at the meeting of the State Medical Society in April. For a matter of record a complete list of officers, together with their addresses, is appended herewith.

President Elect: Dr. C. M. Horton, Franklin.

1st Vice President: Dr. C. Young, Covington.

2nd Vice President: Dr. A. W. Martin, Bogalusa.

3rd Vice President: Dr. Guy Shaw, Loreauville.

Secretary-Treasurer: Dr. P. T. Talbot, New Orleans.

Chairman of the House of Delegates: Dr. King Rand, Alexandria.

Vice Chairman of the House of Delegates: Dr. Val Fuchs, New Orleans.

Councilors for a term of two years:

First District: Dr. H. E. Bernadas, New Orleans.

Second District: Dr. D. N. Silverman, New Orleans.

Fourth District: Dr. M. D. Hargrove, Shreveport.

Fifth District: Dr. J. B. Vaughan, Monroe.

Councilor for a term of one year:

Sixth District: Dr. R. G. McMahon, Baton Rouge.

Committees:

Public Policy and Legislation:
- Dr. Glenn J. Smith, Amite.
- Dr. C. Grenes Cole, New Orleans.
- Dr. P. T. Talbot, New Orleans.
- Dr. H. W. Kostmayer, New Orleans.
- Dr. Foster M. Johns, New Orleans.

Scientific Work:
- Dr. P. T. Talbot, New Orleans.
- Dr. A. E. Fossier, New Orleans.
- Dr. A. A. Herold, Shreveport.

Medical Defense:
- Dr. J. C. Willis, Shreveport. (For term of three years).

Hospitals:
- Dr. J. L. Scales, Shreveport.
- Dr. O. P. Daly, Lafayette.
- Dr. J. E. Walsworth, Monroe.
- Dr. A. J. Comeaux, Lafayette.

Health and Public Instruction:
- Dr. W. H. Seeman, New Orleans.
- Dr. F. R. Gomila, New Orleans.
- Dr. M. H. Foster, Alexandria.
- Dr. J. Q. Graves, Monroe.
- Dr. J. K. Griffith, Slidell.

Journal:
- Dr. John A. Lanford, New Orleans.(For three year term to succeed himself).

Delegate to American Medical Association: Dr. W. H. Seeman, New Orleans.

Alternate to American Medical Association: Dr. A. A. Herold, Shreveport.

## DR. GRAVES APPOINTED CHAIRMAN

Dr. J. Q. Graves of Monroe, Louisiana, has been appointed Chairman of the General Arrangements Committee for the coming meeting of the Louisiana State Medical Society in Monroe, April 26-28, 1937.

## TRI-PARISH MEDICAL SOCIETY

The Tri-Parish Medical Society of Northeast Louisiana had its regular monthly meeting at Lake Providence Tuesday, July 7, 1936.

After a delicious chicken dinner the following program was presented:

1. Surgical Cases of Diabetes, Dr. E. Hirsch, Monroe, La., discussed by Dr. M. W. Hunter, Monroe, La.

2. Lymphopathia Venerum, Dr. J. P. Davis, Lake Providence, La., discussed by Dr. W. H. Hamley, Lake Providence, La.

## DR. LEJEUNE HONORED

It is with a great deal of pleasure that we record the fact that Dr. F. E. LeJeune, Professor of Otolaryngology in the Graduate School of Medicine, Tulane University of Louisiana, has been awarded the Casselberry prize for the outstanding piece of work in otolaryngology in the last three years. This award was given Dr. LeJeune because of the magnificent moving picture film of normal and pathologic vocal cords that he is responsible for making.

## AMERICAN ACADEMY OF PERIODONTOLOGY

The twenty-third annual meeting of this organization was held in San Francisco July 9-11. The Society was honored by having Dr. Haidee Weeks of New Orleans as president.

## U. S. PUBLIC HEALTH SERVICE

Acting Assistant Surgeon C. A. Faber has been relieved from duty, U. S. Marine Hospital New Orleans, and assigned to the U. S. Quarantine Station, Fort Monroe, Virginia.

Passed Assistant Surgeon Joseph G. Pasternack has been ordered to New Orleans for assignment to duty.

Medical interne Joseph H. Goldberger has been relieved from duty at the U. S. Marine Hospital, New Orleans, and ordered to the U. S. Southern Reformatory, El Reno, Oklahoma, for duty.

Senior Surgeon C. L. Williams has been relieved from duty at the New Orleans Quarantine Station and ordered to Washington for duty.

Acting Assistant Surgeon H. M. Heitsch has been ordered from the U. S. Quarantine Station, New Orleans, to Miami, Florida, for duty.

## NEWS ITEMS

Prof. Charles J. Bloom, of the faculty of the Graduate School of Medicine of The Tulane University of Louisiana, conducted a Summer Round-Up on June 19, 1936, at Bay St. Louis, Miss., under the auspices of the Parent-Teachers Association and other Associations of Hancock County.

Prof. Bloom will conduct instruction at the Southern Pediatric Seminar which will be held at Saluda, N. C., on July 27-29, 1936.

Dr. A. Scott Hamilton, specializing in diseases and injuries of the bones and joints, is now associated with the Vaughan-Wright-Bendel Clinic in Monroe, Louisiana.

The First International Conference of Fever Therapy, originally planned for the end of September 1936, had to be postponed until March 30, 1937. This meeting will take place at the College of Physicians and Surgeons, Columbia University, New York City. Information concerning the conference may be obtained from the general secretary, Dr. William Bierman, 471 Park Avenue, New York City.

The fifteenth annual clinical and scientific session of the American Congress of Physical Therapy will be held at the Waldorf-Astoria Hotel, September 7-11. Physicians, their technical assistants, and nurses working in institutional departments of physical therapy are urged to attend this important meeting.

The American Board of Ophthalmology announces the removal of its executive offices to Room 1002 Beaumont Building, 3720 Washington Boulevard, St. Louis, Missouri, according to an announcement from Dr. John Green, Secretary-Treasurer. The next examination is to be held in New York City September 26.

The Congress of the Association of Photographic and Cinematographic Documentation of the Sciences will be held October 9-15 in the Musee Pedagogique de l'Etat, Paris, France.

The National Medical Council on Birth Control was organized in June, 1936, for the following purposes:

1. To control and supervise all medical policies of the American Birth Control League.
2. To initiate, encourage, and execute appropriate scientific research in the medical aspects of birth control.

The Council consists of a distinguished group of obstetricians, gynecologists, psychiatrists, and others interested in this important subject of birth control.

## RESOLUTION ON HEALTH PROBLEMS

The following resolution was adopted by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, June, 1936.

It was moved by Bauer, seconded by Leland:

Whereas, At the annual meeting of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association held at St. Louis, Mo., February 25, 1936, a presentation was made by Major Joel I. Connolly, of the Chicago Board of Health, relating to possible health hazards in apparently modern plumbing installations in public buildings, and

Whereas, It was manifest in the said presentation that plumbing fixtures which have been generally regarded as safe and sanitary in design may in fact constitute a real and serious health hazard by reason of the danger of back siphonage and contamination of water supply mains, and

Whereas, The probability exists that such apparently modern, safe and sanitary plumbing installations may exist in numerous school building in the United States, and

Whereas, The existence of such apparently safe, modern and sanitary plumbing installations and reliance upon them brings about a sense of false security, therefore, be it

Resolved, By the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association that this Committee apprehends the possibility of danger to the health of school children from apparently safe, modern and sanitary plumbing installations in school buildings, and be it further

Resolved, That the said Joint Committee earnestly recommends to all school boards and school executives that surveys be instituted by competent engineers to ascertain whether or not the danger of back siphonage and consequent pollution of water supply mains exist in plumbing installations within their jurisdictions, and that such surveys be followed by prompt corrective measures, and be it further

Resolved, That these resolutions be offered for publication to all journals dealing with public health, health education and general education.

### HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census, reports that for the week ending June 13 there were 172 deaths in the city of New Orleans, divided 107 white and 65 colored. The death rate for the group as a whole was 18.7, for the white 16.4 and for the colored race 24.4. The infant mortality rate this week was 87, divided equally between the two races. For the succeeding week ending June 20, there was some increase in the total number of deaths, there being 183 for this week, with a death rate of 19.9. Of these deaths 100 occurred in the white population with a rate of 15.3 and 83 in the negro with a death rate of 31.1. The infant mortality this week was 110, due largely to the very high negro rate of 170. There was a sharp drop in the number of deaths in the week ending June 27 as contrasted with the previous two weeks, there being only 157 deaths listed with a rate of 17.1; 94 of the deaths were white people with a rate in this race of 14.4 as contrasted with a death rate of 23.6 amongst negroes, 63 of whom died in this week. The infant mortality for colored children was still high, being 141, giving a rate for the two races combined of 110. For the week ending July 4 the death rate of the city as a whole was 18.4 as result of 169 deaths, of which 101 were in the white race with a rate of 15.4, and 68 in the negro with a rate of 25.5. The infant mortality rate this week was only 70, well below the usual average. There was a drop of some 20 deaths in the week ending July 11, largely because there were only 81 white deaths with a rate of 12.4 while the negro deaths were exactly the same as the previous week; rate for the two groups was 16.2. The infant mortality rate was 93.

### INFECTIONS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has sent out the following weekly morbidity reports which are summarized here briefly. For the week ending June 20, the following diseases were reported in double figures: 69 cases of pulmonary tuberculosis, 59 of malaria, 45 of whooping cough, 43 of pneumonia, 25 of gonorrhea, 24 of cancer, 19 of syphilis, 16 of diphtheria and 15 of typhoid fever. Five of the cases of typhoid fever were reported from Caddo Parish; no other Parish had more than one case, except for West Carroll which had two. A case of poliomyelitis was reported from Concordia, a case of smallpox from East Baton Rouge and one of undulant fever from New Orleans. For the next week, ending June 27, there was a sharp increase in the cases of pneumonia, 77 being reported this week as contrasted with five year average of 34.6. There were reported also 38 cases of malaria, 26 of pulmonary tuberculosis, 25 of syphilis, 22 of cancer, 20 of whooping cough, 18 of typhoid fever, 14 of influenza and 12 of gonorrhea. For this week five cases of typhoid fever originated in Tensas Parish, two in Caddo Parish and the remainder were scattered throughout the state. Of the unusual diseases, a case of poliomyelitis originated in Assumption Parish. Caddo and Orleans each reported a case of epidemic cerebrospinal meningitis, while two cases of tularemia came, one from Sabine and the other from Winn Parish. For the week ending July 4 there were tabulated 59 cases of malaria, 52 of pulmonary tuberculosis, 44 of whooping cough, 40 of pneumonia, 21 each of syphilis and cancer, 20 of typhoid fever, 16 of gonorrhea and 11 of measles. For the first time in a long while a case of dengue fever was reported, from East Carroll Parish. A case of undulant fever was reported from Caddo. Of the typhoid fever cases five came from Natchitoches Parish, four from Madison, three from Caddo, three from Evangeline and the rest from scattered Parishes.

For the week ending July 18, the twenty-ninth week of the year, malaria lead all other reportable diseases with 78 cases listed followed by pulmonary tuberculosis with 76, a rather pronounced increase in the incidence of both these two diseases and well above the five year average. Other diseases listed in double figures include: 64 cases of gonorrhea, 50 of syphilis, 47 of pneumonia, 33 of whooping cough, 32 of cancer, 25 of typhoid fever and 18 of influenza. Not more than three cases of typhoid fever came from any one Parish, in this instance Ascension, the remainding cases were scattered throughout the state. There was one case of poliomyelitis which was reported from Rapides Parish.

### WOMAN'S AUXILIARY

### Louisiana State Medical Society

President—Mrs. James Byron Vaughan, Monroe.
President-Elect—Mrs. George D. Feldner, New Orleans.

First Vice-President—Mrs. F. G. Ellis, Shreveport.
Second Vice-President—Mrs. T. H. Watkins, Lake Charles.
Third Vice-President—Mrs. E. B. Middleton, Homer.
Fourth Vice-President—Mrs. R. R. Arceneaux, Welsh.
Recording Secretary—Mrs. C. Grenes Cole, New Orleans.
Corresponding Secretary—Mrs. Joseph P. Brown, Monroe.
Treasurer—Mrs. Courtland P. Gray, Monroe.
Parliamentarian—Mrs. R. T. Lucas, Shreveport.

## TO MEMBERS OF THE WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

The success of the meeting of the Woman's Auxiliary to the Louisiana State Medical Society at Lake Charles, was most pronounced. In the pleasant aftermaths, we should like to say, through the columns of the New Orleans Medical and Surgical Journal, we realize that it was due to the loyal support of the members and to the untiring efforts of their excellent committees in making the guests happy and comfortable, in the executive assemblies besides the delightful outside social contacts.

The week following our state convention several of the officers of the Woman's Auxiliary to the Louisiana State Medical Society accepted the special invitation of the Woman's Auxiliary to the Mississippi State Medical Society to attend their convention being held at Greenville, Mississippi. This proved most interesting. Different angles of a convention and new points of view were enjoyed. A high light of the occasion was the address by Dr. Fishbein, as well as the personal association with Mrs. Bonar White whose deep interest in auxiliary work was very evident. One of her strong points was: "Why are you an auxiliary member?" Solely because your husband is in good standing with his parish society!

We should not wait to be urged to join the auxiliary. It is to the common interest of all doctors' wives, approved and endorsed by the medical societies with a strong board supporting us, to unite in this common cause.

Quoting from a physician of national repute, "When the wives and daughters of physicians become acquainted in their auxiliary meetings and form lasting friendships, it helps greatly toward bringing the physicians into closer relationship."

Dr. Seale Harris said, "The Woman's Auxiliary has arrived—it has complete recognition of the Medical Association."

Quoting from Mrs. Robert W. Tomlinson, "To those women who are not members of the auxiliary, I commend more highly than anything else, the friendships gained through its members and the opportunity to be of service to the highest of professions."

May I urge that each Parish Auxiliary cooperate with our splendid chairman of "Press and Publicity", Mrs. Feldner, by reporting activities of meetings, or incidents or articles of interest, especially pertaining to public health education? Publicity makes news. It is essential in promoting any work that is to be placed before the public and should not be neglected by any auxiliary.

With entertainment being the key-note, when we renew our regular monthly meetings in October, and with each member doing her "bit", we feel assured of new organizations, keen interest and a still closer comradship.

Mrs. James Byron Vaughan,
President.

## OUACHITA PARISH

It is the custom of this auxiliary to entertain the graduating class of nurses each year in June in place of the regular monthly meeting and luncheon. One of the greatest pleasures summer has to offer as a brief respite from the heat, is boating on the river after sundown. Realizing the pleasure afforded from such an outing, members of the Woman's Auxiliary to the Ouachita Parish Medical Association arranged a party on board the "Brown Kraft," complimentary to the season's graduate nurses of the St. Francis Sanitarium. Arranging the details of this enjoyable affair and acting as hostesses, assisted by auxiliary members, were Mesdames R. W. O'Donnel, F. C. Bennett, A. D. Tisdale, E. R. Yancey and J. I. Graves. Supper was served on deck to the Misses Bernice Larson, Ruth Cagle, E. Hargrove, Audrey Mae Smith, Gladys Austin, Blanche Gaddis, Fay Wilson, Lois Downes, Ada Humphries, Thera Morse and Mamie Busby.

The auxiliary members present on this occasion were Mesdames J. B. Vaughan, J. P. Brown, C. P. Gray, R. W. O'Donnel, J. I. Graves, A. B. Gregory, D. T. Milam, Pankey, C. U. Johnson, W. L. Bendel, D. M. Moore, C. H. Hill and A. L. Peters.

The Ouachita auxiliary is inactive during the summer months but we hope all the other auxiliary members will enjoy a cool and pleasurable vacation.

Mrs. W. L. Bendel,
Publicity Chairman.

Supplementary to Mrs. Levin's delightful report on the Kansas City Convention, listed below are the officers of the National organization for the ensuing year:

President—Mrs. Robert E. Fitzgerald, Wisconsin.
President-elect—Mrs. Augustus Kech, Pennsylvania.
First Vice-President—Mrs. David S. Long, Missouri.
Second Vice-President—Mrs. Prentiss Willson, Washington, D. C.

Third Vice-President—Mrs. Philip S. Doane, California.

Fourth Vice-President—Mrs. Martin Nordland, Minnesota.

Recording Secretary—Mrs. C. C. Tomlinson, Nebraska.

Treasurer—Mrs. Eben J. Carey, Wisconsin.

Directors—Mrs. Herbert L. Mantz, Missouri; Mrs. Rollo K. Packard, Illinois; Mrs. Fletcher J. Wright, Virginia.

Dear readers, it is more than worth you time during the lazy, leisure hours of summer to read the messages of the out going and incoming presidents of the A. M. A. Auxiliary contained in the May issue of the American Medical Association Bulletin. So much inspiration, interest and auxiliary spirit prevail in these paragraphs that one can hardly have read them and not feel proud to be a member of this body of women who are doing so much toward the welfare of humanity. If you are not in the habit of reading the Bulletin, start now and let the habit grow on you so that you will look forward with expectancy to each publication.

Mrs. George D. Feldner, Chairman,
Press and Publicity.

# BOOK REVIEWS

*Evans' Recent Advances in Physiology*, 5th ed., rev. by W. H. Newton, M. D., M. Cc. (Manch.) Illus. pp. 500. Philadelphia, P. Blakiston's Son & Co., Inc., 1936.

"The advance of theoretical physiology is intimately related to the advance of medicine because it is the only basis on which scientific as distinct from empirical medicine can possibly rest . . . . . Whether or rather when, the conquest of medicine by physiology eventuates, will depend as much on the perspicuity of pathologists and physicians in applying physiological theory as on the diligence and intelligence of physiologists in developing it." Frankly, there is not much in this volume that will appeal directly to practitioners of medicine.

Chapter 1 deals with the Coronary Circulation and its Regulation. Recent work, including detailed descriptions of methods, is dealt with in detail. Two deficiencies of the discussion are an insufficient review of the other means by which the heart muscle may be fed when the coronary circulation is occluded and the recent work of Kuntz on the nervous control of the coronary circulation in revived human hearts. Chapter 3, on the Carotid Sinus and the part played by it in the regulation of respiration and circulation, suffers from the defect that much important recent work has appeared since this volume went to press.

Carbonic Anhydrase is discussed in Chapter 4. This is the enzyme, almost exclusively in the red blood corpuscles, which accelerates the rate of the equilibration of the bicarbonate of blood with carbon dioxide. New work on the Carriage of Carbon Dioxide by the Blood is given in Chapter 5. This is particularly concerned with carbamino-bound, "x-bound" and "y-bound" CO2. The total CO2 combined otherwise than as bicarbonate is called "x-bound" CO2, this minus carbamino-bound CO2 may leave a residue unaccounted for which is "y-bound" CO2.

Chapter 6 deals with the Oxygen Supply of the Fetus, the recent work on which is particularly associated with the name of Joseph Barcroft of Cambridge, England. The hemoglobin of the fetus and the hemoglobin of the adult are not identical, and there are at least two varieties.

Chapter 7 on The Sex Hormones is not one of the best chapters in the book, the subject having been much more adequately presented elsewhere. Chapter 8 deals with Conduction and Excitation in Nerve; Chapter 9 with the Chemical Transmission at Nerve Endings, a topic which has been adequately dealt with in many recent reviews and which is advancing so rapidly that much of the material here presented is already out-dated. Chapter 10 on the Spinal Reflexes might well have been omitted since this has been so adequately discussed in the monograph by Creed, Sherrington et al., from which much of the material here presented is taken.

Chapter 11 deals with the Secretion of Urine. This again is a branch of physiology which is advancing rapidly and no general review can do the recent advances justice. Chapter 12, the last, deals with the Nervous Control of Micturition and Defecation.

It is becoming questionable as to whether a work of this sort really serves a useful purpose. The chapters in physiology which are advancing are doing so so rapidly that by the time such a work as this makes its appearance the more "recent advances" have made the work obsolete. Physiology is too large a subject to treat of recent advances in one small volume. The author of such a work has to pick and chose what topics he will deal with, thus excluding many recent advances. Volumes dealing with subdivisions of physiology have already been included in this series, for instance Endocrinology, Sex and Reproductive Physiology, Haematology, and others might profitably be added, on the Autonomic Nervous System, The Circulation and the Respiration.

Henry Laurens, Ph. D

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*Pediatric Nursing*: By John Zahorsky, A. B., M. D., F. A. C. P. St. Louis. C. V. Mosby Co, 1936. Pp. 568. Price $3.00.

Pediatric Nursing is a complete reference book for nurses, presenting in clear and understandable terms the actual procedures of pediatric nursing. The second section will undoubtedly be helpful to the young pediatrician who is often in some doubt as to the actual detailed instructions to be given to his nurse. Older nurses will find this book an excellent means of bringing up-to-date their knowledge of the procedures of children's diseases.

Dr. Zahorsky stresses the necessity of a nurse being humane to her patients and understanding both the parents, the child and her own position in the home. Some will smile at his recommendation of a cradle in the home to lull the child to sleep. Perhaps he is right and we moderns may have to drop some of our ultra scientific conceptions of child care.

The Byrd-Dew and Sylvester methods of artificial respiration are recommended in the care of the new-born. Warning is given that the method should not be violent. The reviewer wishes that Dr. Zahorsky had omitted all such methods since the average person gets excited in his handling of the new-born, in his attempt to get the baby to breathe, and forgets the harm which may be done by violence in such cases. We see hemorrhage and rupture resulting from such violence.

Surely every nurse doing pediatric nursing will want this book.

Suzanne Schaefer, M. D.

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*The Balanced Diet*: By Logan Clendening, M. D. New York. D. Appleton-Century Co., 1936. Pp. 207. Price $1.50.

This is a splendid, simple, sound and succinct popular presentation of a topic of perennial interest, diet. Clendenning presents many interesting facts in connection with his discussion, that make interesting reading. The chapter on food fads is well done and should be recommended to all interested in this subject.

I. L. Robbins, M. D.

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*The Normal Diet and Healthful Living*: By W. D. Sansum, M. D., R. A. Hare, M. D. & Ruth Bowden, B. S. New York. The Macmillan Co., 1936. Pp. 243. Price, $2.00.

This popular treatise on diet and personal hygiene is dedicated to those who would retain and regain good health. Simple, yet scientific, one wonders why another book on hygiene and diet should be published when so many equally as good already exist.

I. L. Robbins, M. D.

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*New Faces—New Futures*: Rebuilding Character with Plastic Surgery, by Maxwell Maltz, M. D. New York. Richard R. Smith, 1936. pp. 315. Price $3.00.

The author means exactly what the title says—his subjoined remark "rebuilding character with plastic surgery" at once suggests the viewpoint of Dr. Maltz in this popular book intended to show the public the great boon of plastic surgery to mankind. There is nothing technical about the book and even the several surgical procedures presented are obviously more to impress upon the laity the comparative simplicity of the operations and the comparatively slight danger of complications resulting from them. It is an enjoyable volume and the author has a definite and worthwhile message for those afflicted by nature or man with facial or bodily disfigurements.

I. L. Robbins, M. D.

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*Surgical Clinics of North America*: February, 1936. Philadelphia. W. B. Saunders Co., 1936. pp. 356.

This volume contains 21 articles written by men of great experience. It has no theory but is replete with the accumulated knowledge of years of practice.

Among its contents is a symposium on cancer of the cervix, which is most complete and opportune. The bulk, however, of the volume deals with orthopedic and neurologic surgery presented in a most straightforward manner. Other excellent surgical subjects are also discussed; their manner of presentation is concise yet finished.

The "Present Status of the Problem of Appendicitis" is written by one who was among the first to operate for appendicitis; the historical, as well as the clinical aspects are well worth reading.

M. Lyon Stadiem, M. D.

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*Mechanics of Normal and Pathological Locomotion in Man*: By Arthur Steindler, M. D., F. A. C. S. Iowa City, Iowa. Charles C. Thomas, 1936. pp. 424. Price $8.00.

With a thoroughness that is amazing, Professor Steindler has presented a comprehensive treatise on a subject which lately has received widespread attention. His very painstaking investigation and elaborate exposition of a most intricate function has dwarfed the laborious attempts of other writers. This work, his latest, ranks supreme, as does each of his previous efforts, and undoubtedly has reached the pinnacle of scientific research in the field of the study of locomotion.

There is no doubt but that this excellent volume will be the subject of many reviews and discussions, but its intricacy will be fully appreciated only by the erudite few.

Presenting his subject in a logical manner, Professor Steindler introduces each mathematic, kinetic, physical, anatomic and pathologic premise with a full explanation of every static and dynamic term, bringing each to a logical conclusion in the latter half of his book. In applying his practical conclusions, he has made use of the body as a whole, taking into consideration the co-ordination of joint and muscle with the effect of gravitation.

The anatomic and physiologic studies of each joint, illustrated in profusion with countless diagrams, and the pathomechanics of bone and muscle are in themselves well worth the cost of the volume.

Mechanics of Normal and Pathological Locomotion in Man is a reference book supreme, and will prove invaluable to the orthopedist, anthropologist, biologist and physiologist for its mathematical precision, and to the well-grounded physician for its extreme practicability.

Dudley Marcus Stewart, M. D.

*The Specificity of Serological Reactions*: By Karl Landsteiner, M. D. Baltimore, Charles C. Thomas. 1936. pp. 178. Price $4.00.

A review to date of the work of Karl Landsteiner will be warmly welcomed by all those interested in immunological problems. With the work of himself and his associates as a nucleus, the author builds up, more or less chronologically, the problems and present concepts of the specificity of natural antigens and antibodies. The work on artificial conjugated antigens and serological reactions with simple chemical compounds follows. Here the relationship of reactions to chemical structure is considered, particularly as demonstrated by work with azoproteins, the effects of the presence and position of acid groups and spatial relationships. The nature of hypersensitivity to substances of simple composition is discussed and evidence to demonstrate in some instances a probable conjugation of these products with proteins or other substances in the animal body is reviewed. Lastly, the more recent advances in the relationship of polysaccharides and lipoids to serological reactions are considered, particularly the work on the pneumococcus and other bacteria. Chemical aspects especially are emphasized.

The book is easily read and understood by those only mildly interested in the problems. Tables and data which might be confusing are reduced to a minimum. Results are given briefly and in an understandable fashion. A comprehensive bibliography adds further to the usefulness of the volume.

W. A. Sodeman, M. D.

*Sedwicks Principles of Sanitary Science and Public Health*: Rewritten and enlarged by Samuel C. Prescott, Sc. D. and Murray P. Horwood, Ph. D., N. Y., The MacMillan Company, 1935. pp. 654. Price $4.50.

The editors of this revised edition of an established work have maintained the scope of the original and enlarged its subject matter. The emphasis on the organized control of the environment which Sedwick adopted as the scope of his work is kept by the editors of this edition, and rightly so. Although a few pages in the beginning are devoted to definitions and introductory remarks which show the position and limitations of sanitary science in the whole field of medicine, the greater part of the book is an expansion on the theme of environmental control. As a result, the editors have categorically considered in a limited space, all current thoughts and activities in community hygiene. This they have done in a pleasing narrative sort of way. Apparently for the sake of non-medical readers, they have discussed the outstanding medical facts about the chronic diseases which they consider.

The book is well composed and suited to the Sanitary Officer who seems to be the principle audience in the mind of the authors. It is too limited in detail to be a source of reference to the medical sanitarian or public health worker who must go more deeply into his subjects. As a matter of fact there are a bare 50 bibliographic references in the whole 600 pages of the book.

W. H. Perkins, M. D.

## PUBLICATIONS RECEIVED

The Macmillan Company, New York: The Art of Treatment by W. R. Houston, A. M., M. D., F. A. C. P.

P. Blakiston's Sons & Company, Philadelphia: The Relief of Pain by Harold Balme, M. D.

W. P. Saunders Company, Philadelphia: Minor Surgery by Frederick Christopher, S. B., M. D., F. A. C. S. The Eye and Its Diseases by Conrad Berens, M. D. Endocrinology in Modern Practice by William Wolf, M. D., M. S., Ph. D.

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# SAFE DRIVING*
# A SYMPOSIUM

## NEUROPSYCHIATRIC ASPECT*

FREDERICK L. FENNO, M. D.
New Orleans

It would appear unnecessary to detail the various neuro-psychiatric disturbances that constitute a hazard to safe driving. Probably no other bodily system is so essential to the proper handling of motor vehicles as the central nervous system and its various components. A clear mind and normally functioning reflex mechanisms are most important in the performance of such actions. Even omiting the special senses and their reflex pathways, as they will be presented by others who specialize in such fields, it goes without saying that the majority of organic lesions of the brain and spinal cord must be considered as constituting a contra-indication to the issuance of drivers licenses. The major psychoses can surely be placed in this category, for it can be readily appreciated that individuals whose reaction types are such as to include hallucinatory or delusional complexes should not be entrusted with the handling of motor cars on public roadways. It is highly probable that in the majority of instances the officials in charge of licenses for drivers of motor vehicles would, on their own initiative and without specific regulations covering such conditions, hesitate to grant permission to any individual presenting indications of a gross mental abnormality, but it is an essential that those individuals showing nervous instabilities, fatigue syndromes, or any of the anxiety states be refused such a permit. Quite frequently accidents occur that would probably have been easily avoided but for the fact that the driver of one of the vehicles was an individual of one of the types to which I have just referred.

From the organic-neurological standpoint, the residuals of various types of cerebral insults probably present the largest number of conditions which are overlooked by licensing authorities. The residual hemiplegias and monoplegias are given little consideration as constituting disqualifications for driving an automobile and yet, properly functioning limbs are quite necessary for the control of such vehicles and any individual who possesses one or more extremities of limited function as a result of changes in the central nervous system whether due to disease or injury, is incapable of exercising normal use of such a member. Closely associated with this group are the residuals of infantile paralysis.

The Parkinsonian syndromes, whether a true paralysis agitans, or a residual encephalitis, should certainly be given careful consideration, characterized as they are by muscular rigidity and involvement of those centers controling automatic movements.

A tabetic with his lower cord involvement, characterized particularly by changes in the patella reflex mechanisms and loss of "sense of position" is certainly not one to be casually entrusted with the handling of vehicles in public.

The epileptic and allied groups, particularly those individuals presenting cases of narcolepsy, constitute a most dangerous group in this respect.

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*Read before the Orleans Parish Medical Society, April 13, 1936.

It would seem superfluous to mention such conditions as chorea and habit spasms, various types of these, particularly tic douloureux with its intense pain, are certainly of such a nature as to distract the sufferer from the seriousness of his responsibility in participating in motor traffic.

It is a well recognized fact that alcoholics, through their effect on the central nervous system, inhibit or interfere with the normal reflex mechanisms as well as impairing judgment and mental faculties and the user of alcohol must therefore be considered from both neurologic and psychiatric aspects. Various other toxic agents and narcotics as morphine, cocaine, mariahuana and some of the barbitals must be given the same consideration.

Those suffering from senile syndromes, those of arteriosclerotic disease of both brain and cord, characterized by symptoms varying from mild tremors to brief periods of unconsciousness, should certainly be disqualified.

In fact, it would seem unnecessary and is, in the short space of time allotted, impossible to detail all of the neuro-psychiatric conditions that must be accepted as constituting a serious menace to the safety, not only of motorists in general, but the public at large.

If those suffering therefrom are granted the privilege of operating motor vehicles, it can be safely held that any involvement of the nervous system in general or its component parts from gross organic changes through the frankly established functional involvements are of such a serious nature as to present all the evidence needed to be refused licensing as an operator of a motor vehicle.

## SURGICAL POINT OF VIEW

EMMETT IRWIN, M. D.

NEW ORLEANS

I venture to say there is no group of persons who are more careful in the operation of an automobile than the physicians, therefore, to appear before this assembly to discuss safe driving, which to you is a primary and academic subject, causes one to apologize and ask your indulgence. However, it is usually the simpler and more common occurrences in every day life that are lightly treated and oftimes overlooked, but it is the unusual or spectacular happening that makes the headline and grips the attention of the community.

The great object of the medical profession is to save life and to preserve the health of man, either through care or prevention of disease, but today the evils of the automobile traffic constitute a disease far more dangerous to human beings than many of our infectious diseases. There is no group of citizens more competent to sit in judgment on this question than the physician, who comes in intimate contact with the terrifying results brought about through negligence or carelessness of drivers, many of whom are irresponsible or physically unfit to operate a vehicle of speed. The surgeon is called upon to battle against death or the possible loss of a limb, because of the nature of the wound, infection, shock or what not. These automobile smashups have a peculiar delight in so many instances of producing injuries to the head, spine, mediastinum or abdominal viscera, all of which constitute a distressing group of cases and may be classed as types of injuries not the most satisfactory to treat.

Many of those persons surviving smashups carry with them throughout life some disability or disfigurement such as the more common facial cicatrix. Most of these injuries are unnecessary and could have been avoided if some drivers had not endeavored to beat a traffic light or had not disobeyed some traffic regulation or if the car had been satisfactorily conditioned.

I am certain any one of you has seen persons operating cars possessing physical disabilities which should disqualify them from obtaining a license to drive. I refer to individuals who have but one arm, an artificial leg, or who possess congenital deformities or suffer the effects of infantile paralysis, or hemiplegia. Of course, some of these may be made safe drivers through specially adapted devices for driving.

The city authorities are to be commended for the brave and effective campaign recently begun and continued, resulting in a great reduction in traffic fatalities and injuries, and this enforcement of law should be permanent. Many unserviceable automobiles have been barred from the streets through refusal of a license because of failure to pass inspection, and likewise, in the same manner many drivers should be refused license because of physical disability or unfitness. This campaign should be made perpetual and the requirements for license should be made more severe.

During the past Carnival one of the auto wrecking companies staged an interesting parade on Canal Street, displaying the remains of many cars after smashups. A view of these masses of tangled metal should have been a persuasive deterrent for careless drivers. It would also be a good idea if it were possible to parade a great number of the human beings **made wrecks for life** through careless and reckless driving because this would make an everlasting impression upon the onlookers.

This Society should be highly complimented upon its safety campaign and above all, commendation should be heaped upon the head of our President, who, even prior to his election, through certain interviews and conferences, is the one person who really is responsible for the widespread campaign of safety in the city and incidentally the most effective safety drive yet carried on. We must assist him in this magnificent undertaking and the campaign must be followed up.

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## SIGHT AND SAFE DRIVING

CHAS. A. BAHN, M. D.
NEW ORLEANS

Traffic diseases, like all others, bring their most vivid horrors directly to the doctor's door. Only a general understanding of the fundamentals of safe driving, and common sense in their application, can check the new plague of crippling and death-dealing automobile accidents.

The automobile is essentially a precision instrument which requires intelligent operation. Improperly used, it is an implement of death. No carefully aimed projectile from the finest long range gun can be more destructive than two thousand pounds of steel plus explosive gasoline traveling wild and unaimed at speeds up to one hundred and twenty feet per second ( eighty miles per hour.) Contrary to the general conception, the driver of an automobile handles more energy for the weight of his vehicle than a locomotive engineer. The motorist, with little or no training, can hardly be compared in responsibility to the railroad employee who is repeatedly examined, has years of experience, and pilots his engine over a fixed track.

First and foremost among the fundamentals of automobile accidents are human selfishness and carelessness. Physicians, more than others, witness the useless suffering and needless loss of life and limb caused by recklessness, drunkenness, speeding, and disregard of traffic regulations. The average citizen unfortunately seems to think that traffic laws are made only for the other fellow. He instinctively resents the thoughtless violation of these simple protective regulations by other drivers. Yet, when the offender is a member of his family, or a friend, he excuses them and uses his influence to help them escape the same punishment that he would emphatically demand for the stranger. He is directly responsible for many needless injuries and deaths which would be prevented by unhampered enforcement of traffic regulations.

The fight against traffic disease must be based on an understanding of normal safe driving. The driver handicapped by visual or other defects may be only a slightly increased hazard under favorable conditions. In fairness to his and others' safety, however, we must realize that his risks are excessive, a greater part of the time because ideal conditions on the road seldom exist.

Reasonable coordination of eyes, muscles, and brain, means safe driving. Although only five per cent of automobile accidents are directly traceable to bad eyes, ocular diseases or accidents may force any one of our twenty-eight million drivers into an accident.

*Central Vision*: The accepted opinion is that 20/50 vision is necessary for safe driving. This means that the driver must be able to read three inch numbers, such as those on a license plate, at seventy-five feet under reasonable lighting conditions. The man behind the wheel must also be able to judge accurately the size and shape of the road space through which he is to guide the car. Should his eyes distort objects, a hazard is introduced which calls for either correcting lenses or compensation by increased carefulness.

A year is generally necessary for the man who suddenly loses the sight of one eye to regain sufficiently accurate distance estimation for safe driving. After that time, with the aid of a double mirror which facilitates seeing approaching objects on the blind side, the one-eyed driver represents only a slightly increased road hazard. Nevertheless, he should always wear protective glasses. If dust or other objects get into his only seeing eye while driving, even at moderate speeds, he is absolutely blind and helpless and only a miracle can prevent disaster.

*Color Vision*: Color blindness has caused relatively few accidents on the road. Any hazard from the color-blind driver could be eliminated by the use of traffic signals arranged in standard positions and shapes. For example, the red signal could be a horizontal rectangle in the upper position, and the green signal a vertical rectangle below.

*Light Sense*: Changing light conditions on the road require unusual retinal adaptation. Because the eyes can not adjust themselves rapidly enough, a driver confronted by brilliant headlights must pull his eyes from the glare to see the right edge of the road. Even after slowing to a crawl while the oncoming machine passes, the driver must again endure seconds, or even a minute, of partial blindness until his eyes readjust to the second abrupt change from glare to darkness. Persons who have eye diseases particularly characterized by this inability to see well at night, or after changes in luminosity, should not drive an automobile.

Glaring, overbright headlights are harmful even to healthy eyes. Their danger is understood legally as well as medically. In accidents attributed to blinding headlights, contributory negligence is held to exist unless the car struck has come to a dead stop. Headlights which throw their beams as far as two hundred feet ahead, the legal requirement, usually blind the oncoming driver with their glare. One preventive remedy is to change from country driving lights which are directed at 200 feet ahead to city lights which focus downward at less than seventy five feet.

Drivers with oversensitive light adaptation are affected on brilliantly sunny days as well as at night. When the use of colored glasses does not eliminate this discomfort, such a person is visually unfit to drive a car.

*Peripheral Vision*: Direct vision examination for a driver's license entirely misses the applicant with restricted visual field. He may see clearly and quite perfectly straight ahead of him, but, like a horse with blinders, he cannot perceive an object approaching from the side until very close. Often that is too late. The man who sees only as though he were looking through a tube must be eliminated as a driver.

*Double Vision*: Alterations in the visual motor field may cause double vision or diplopia, a defect for which no amount of carefulness can compensate. Whether the condition be the result of sick eyes, or due to the temporary influence of fatigue or alcohol, the double-seeing driver is highly dangerous. He may guess right nine times out of ten. The tenth time means destruction, not only for himself and his car, but for the innocent "other fellow."

Thus far we have discussed the visual characteristics which are physical. Much more important is the mind which governs vision and all the other senses. The safe driver is judged, not solely by his vision, but especially by his physical and mental reaction in properly interpreting a series of visual pictures. His safety margin must always keep him one step ahead of accidents. The driver who is good only under favorable conditions, however, is not necessarily the safe driver. Selfish drivers disregard the safety of others, and adventurous drivers take foolish risks which endanger others.

A definite time is required for mind and muscles to react to all sense perceptions. This reaction may be entirely subconscious, or may be subconscious and then conscious. Sight is the sense most closely and frequently associated with the subconscious. About three-fourths of a second is the normal time for a person with reasonably good coordination to make a motion, such as applying brakes, after an object is subconsciously perceived, provided the driver has been reasonably attentive to the business of driving. If the driver is half asleep, or thinking of something else, or if his reactions are retarded by disease, alcohol or fatigue, this time interval is greatly increased. Even three-quarters of a second in a vehicle going forty to sixty miles per hour, represents from forty-five to sixty feet of distance traveled before the driver can begin to apply the brakes, and twice this number of feet traveled before the car can be stopped. The time factor thus becomes a very definite part of the safety margin usually neglected by the careless driver.

The most frequent serious injuries of the visual mechanism caused in automobile accidents result when the eye-ball is struck either directly or through the lids. Injuries to the eyes under such conditions may include destruction of the eye-ball, muscular paralyses and lid injuries which often require prompt coaptation to prevent disfigurement. The more general use of non-shatterable glass has materially reduced the number and severity of these accidents.

Even when there is no actual injury to the orbit or eye-ball, a head blow of great severity, with or without bone fracture, may produce ocular injury. Subconjunctival bleeding without causative external injury suggests bleeding behind the eyeball. The actual destruction of brain substance, cerebral hemorrhage, or concussion, may cause partial or total loss of vision either temporary or permanent and usually limited to one side.

Minor ocular injuries caused by the introduction of foreign bodies such as dust, cinders, and insects into the eyes while driving are potentially serious because of at least momentary loss of automobile control.

Ninety per cent of the increasing number of accidents are caused by less than fifteen per cent of drivers. New drivers should be technically and practically examined for mental, visual and mechanical fitness for a driver's license. Unfortunately, a certain number of persons can never be made safe drivers. They have not the physical and mental qualities necessary to operate a car without endangering the lives of themselves and others. Chronically unsafe drivers could easily be removed from the road by a simple investigation of every automobile accident involving injury or death. One member of the investigating committee should be an understanding physician.

Most important in fighting our traffic diseases and maintaining healthy automobile driving is the safety habit. The habit of driving with conscious thought for safety is a good habit. Careless and absentminded driving is a bad habit. Safe driving must be recognized as an earned privilege and not a God-given right.

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## MEDICAL CONDITIONS WHICH RENDER ONE UNFIT TO BE A SAFE DRIVER

SHIRLEY C. LYONS, M. D.
NEW ORLEANS

One needs to make no apology for appearing before this body on such a commonplace subject when one briefly reviews the record of deaths from automobiles and trucks for the past few years. In what is referred to by some as "the great American gamble," there were 29,900 killed and 850,700 injured on the streets and highways during 1933, as the result of automobile accidents. In 1934, these figures rose to 36,000 killed and 954,000 injured; and in 1935, there were 36,100 killed and 895,280 injured.

The automotive industry has spent many dollars on experimental work until now they produce attractive speed wagons which are almost mechanically perfect, so much so that it is estimated that less than 5 per cent of all automobile accidents are the result of faulty mechanism of the machines. The human machine is responsible for 95 per cent of all automobile accidents, yet few people seem to have considered the importance of examining the human part of the automobile driving machinery. Drunkenness or intoxication of the driver has come in for a large share of blame, a share which I am inclined to believe has been grossly exaggerated. Far be it from me to condone the drunken driver; certainly I would suggest a more careful investigation by competent individuals, however, before denouncing a driver on that score.

Another word here on the general subject of automobile accidents: In comparing the results of many investigations, there is one outstanding feature which may be summed up in the striking statement that in 75 per cent of all accident cases the driver was going "straight through." In this terse statement I believe we have the most important solution to our present high and ever increasing mortality rate or slaughter from automobiles. Whom do we find among this group of drivers that go straight through, often, very often, regardless of traffic signals and road signs? I firmly believe that if a careful investigation of these "straight through" drivers and those who repeatedly violate traffic rules were conducted by qualified persons, we would find it composed of persons who should never have been given licenses to drive in the first place; namely, individuals with bad eyes, bad ears, bad feet, poor hearts, poor circulatory systems, bad nerves, anemias, deformities, and last but not least a poor quality of brain. In other words it seems that the great destruction of human life annually produced by automobile accidents is due in the main to the issuance of drivers' licenses to persons unfit to be entrusted with such responsibilities. Certainly a complete physical examination of these "straight through" drivers and repeaters in accidents is not asking too much. In regard to the physical defects enumerated above, I am sure that you will agree with me that it is unwise to turn such people loose with such dangerous, high powered machines of destruction. I am sure none of you would want them for your hunting partners. Such persons are endangering their own lives as well as the life of every person they meet on the street or road.

It has been shown in an investigation that men over 50 years of age with abnormal blood pressure had on the average more than twice as many accidents as men of the same age whose blood pressure was normal. Does not this speak conclusively for a periodic physical examination?

After reading much on the subject and giving a reasonable amount of thought and time to the subject, I believe that the following conclusion expresses my sentiment: Intelligence, caution, courtesy and equilibrium, added to good physical condition, are requisite to enable one to operate an automobile with safety to himself and others. Certainly the time has come when every applicant for a driver's license should be obliged to pass a physical examination and should be compelled to again pass such an examination after any serious accident or after a period of years.

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## THE PHYSICIAN'S ROLE IN TRAFFIC ACCIDENT PREVENTION

JAMES T. NIX, M. D.
New Orleans

"For thousands of years medicine has united the aims and aspirations of the best and noblest of mankind." Anything pertaining to the welfare of the community has been and will continue to be within the province of the physician.

Editors and publishers are aroused and are authority for stating that in 1935 motor vehicle accidents commanded more news and editorial space than any other subject, including the Lindbergh case and the Italo-Ethiopian war. People are no longer tolerant as the lives of their loved ones are ruthlessly snuffed out.

This accident problem is a grave menace. We are facing what we might label a traffic scourge, the worst kind of enemy,—one within our ranks. **"Inimici ejus; domestici ejus.** Our enemies are within the home." —We drivers. This scourge, like the worst epidemic, brings a yearly slaughter of school children, higher than any of the Captains of Death, pneumonia, diphtheria, infectious diseases; this scourge carries a yearly loss of young manhood second only to heart disease. With crippled, infirm and injured added, the number far surpasses the morbidity and mortality of the three highest causes of death combined.

The traffic scourge between 1920 and 1935 caused 388, 936 deaths, more than the human toll in all wars of our history from Independence in 1776 to 1935. The graves of traffic victims, arranged in a row, would stretch in an unbroken line of crosses from the Gulf of Mexico to the Great Lakes.

Traffic accidents and deaths in the United States, we are ashamed to admit, lead every other country on the face of the globe. The good name of America is stained, the integrity of her citizens impeached, and unfortunately, conditions are getting worse.

The year 1935 saw an all-time high in motor vehicle accidents. Deaths, 36,400; non-fatal injuries, 1,170,000! In addition, more than 100,000 people received permanent injuries, were condemned to go on through the rest of their lives crippled. Add the less important figure, staggering as it is, of one billion, six hundred million dollars, the economic price tag of automobile accidents, and you have a fairly complete picture of what happened last year.

Turning to New Orleans, Charles W. Matherne of the Traffic Office points out the number of accidents is inversely proportional to the number of arrests for traffic violations. In December, 1935, there were fifteen deaths and one hundred and sixty-two arrests; in February, 1936, four deaths and 2,075 arrests. The activity of the police departments this year has effected a decrease of 150 per cent in January fatalities, compared with December, 1935, and a decrease of 66 per cent compared with January last year. By redoubling our efforts greater results can be secured.

It is interesting to medical men that of 2,075 arrests in February only ten were issued to physicians. Is this due to carefulness of the physicians or the respect shown by police for their calling?

The reports of deaths by accidents in the Times-Picayune last year show one fatal accident and two minor accidents with physicians involved. The proportion of medical to lay drivers is 1:112.7; the accident ratio, 1:596. Furthermore, there occurred one accident for every forty-four drivers of all classes, although there were only three accidents for seven hundred and fifty physicians. This reduction in our favor is creditable.

What are the remedies to apply?

Civil authorities require and should insist that cars are equipped for safety. Traffic regulations must be respected and rigidly enforced.

Educate the public, beginning with children in grade schools and extending through all channels to and beyond institutions of higher learning.

Children must be taught safety measures. During the past year in a graded school on the Mississippi Gulf Coast, fourth, fifth and sixth grade children were offered a prize for the best slogan of less than five lines on the sign, "Stop—Look—Listen." A girl of eleven years offered a verse which older heads might heed:

"Think before you cross the street,
Use your head before your feet."

In higher education Harvard University has initiated a graduate course in automobile traffic control, beginning next fall, and will award fifteen Fellowships paying $1,200 each to college graduates interested and qualified. Northwestern University has taken a similar step.

Medical men in general and special practice should be accident-conscious. Neurologists, surgeons, internists, oculists, men of every specialty should advise patients of physical shortcomings with potential dangers and probable liabilities assumed in automobile driving at various speeds. When the physical defect demands, the doctor should instruct his patient not to drive.

The A. B. C's, "Always Be Careful" and "Don't Speed" apply to all walks of life. "A speeding car is a caliper between the quick and the dead." There are many signs on highways, but one on the road West especially applies to doctors and to all with lives in their care. "Life is dear to all of us. Be a careful driver."

In America, 1935 goes down the darkest page in annals of automobile accidents. The moaning of 36,400 dead thunders in our ears; a marching stomp of 100,000 cripples trembles America; 1,760,000 injured from every quarter shriek to heaven demanding the prevention of accidents.

There is but one answer! Physicians, educators, police officials and the intelligent public have been conscripted alike. As a mighty phalanx we should be ceaseless in measures of education, inflexible in law enforcement, uncompromising in prosecution until accidents are reduced to a minimum, and the lethal car driven to cover and destruction, away from streets and highways.*

*At the completion of this symposium a resolution was introduced by Dr. Joseph C. Menendez and passed unanimously. This resolution read as follows:

WHEREAS, there is at present being conducted throughout this city and state a campaign to support safe driving measures, and

WHEREAS, the safety committee of the Orleans Parish Medical Society has closely studied the efforts being made in this campaign, and

WHEREAS, the safety committee has suggested that the campaign be extended to enhance the physical, mental, moral, and medical qualifications of the applicant, therefore,

BE IT RESOLVED, that the Orleans Parish Medical Society go on record as endorsing the safe driving movement; that the members of the Society, will by their conduct, influence, and example, lead the way to safe driving; that the Society will work and cooperate with the officials in charge of this movement and with all civic bodies so engaged; that the Orleans Parish Medical Society offer and stand ready to work out any medical problems that may arise in the course of the campaign.

BE IT FURTHER RESOLVED, that copies of this resolution be made, and placed on record with the authorities in charge.

# THE MORTALITY OF ACUTE APPENDICITIS

## AN ANALYSIS OF 156 FATALITIES.*

URBAN MAES, M. D.†

FREDERICK FITZHERBERT BOYCE, M. D.†
and
ELIZABETH M. McFETRIDGE, M. A.†
New Orleans

Our serious concern with the subject of acute appendicitis has been expressed in the last three years in a series of seven papers dealing with various phases of the disease as it is exhibited in the statistics of the New Orleans Charity Hospital. During the five-year period ending April 1, 1935, 2,295 persons were operated on for acute appendicitis in that institution, and 131 of them died, as did 25 others without benefit of surgery. It is with those 156 fatalities that this present communication is concerned. The surgical group we shall discuss against the background, as it were, of the total number of surgical patients. The medical group or, more correctly, the non-surgical group—we are unwilling to lend ourselves even to the faint implication that there is a medical treatment of acute appendicitis— we shall discuss independently, since the deaths themselves rather than the death rate are our chief consideration here.

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*Read before Orleans Parish Medical Society January 27, 1936.

†From the Department of Surgery of the School of Medicine of Louisiana State University, and the Charity Hospital in New Orleans.

An analysis of the surgical figures from the standpoint of sex, age and race provides little that is new but much that is interesting. As usual, males furnish more than two-thirds of the cases (67.9 per cent), though the female mortality is slightly higher, (5.6 to 5.9 per cent). In childhood, for some reason, the male mortality is 2.5 points lower than the female, though after 40 years of age it is almost seven points higher, but why these discrepancies should exist we cannot undertake to say.

Age is an enormously important factor in the mortality. The number of cases in children under 12 years of age is not quite a fifth of the total number, but the number of deaths in this age group is well over a quarter of the total number. In adults over 40 years of age the number of cases is less than a tenth of the total number, but the number of deaths is again well over a quarter of the total. In other words, the periods of life which furnish less than 25 per cent of the incidence of acute appendicitis furnish well over 50 per cent of the mortality. To express it in still another way, the mortality in childhood is almost two and a half times as high and the mortality in late adult life is more than four times as high as is the mortality in the group of patients between those two extremes, a state of affairs which makes the 37 deaths in children and the 34 deaths in late adult life assume a far more sinister significance than the 60 deaths in adults in the middle years.

The racial factor is a particularly important consideration to surgeons of this community, who, whether they will or not, must carry on their own shoulders most of the medical burdens of the negro. The white admissions to Charity Hospital average about 5 per cent more than the negro admissions, but the white incidence of acute appendicitis is more than three times higher than the negro, though the mortality among negroes is more than 6 points higher than in the white race (9.7 to 4.6 per cent). The difference is still more marked in the extremes of life, when the negro, who furnishes less than a quarter of the incidence, furnishes well over a third of the mortality. A death is a death, regardless of race, but it is only fair to surgeons of this community, as we have repeatedly pointed out, to analyze all Charity Hospital statistics from the point of view of race, for the negro is literally in a surgical class by himself. Undoubtedly he contributes to his own death rate by his procrastination in seeking medical attention and by his even more pernicious habit of self-medication, but in this disease both of those tendencies are shared by his white brothers, and our own explanation of the marked disparity in the death rates of the two races is that acute appendicitis, like all acquired diseases, tends to be of a graver character when it occurs in individuals who once had a true racial immunity to it.

The astonishing inequalities of age and race are not apparent when we pass on to other matters. There is nothing surprising, for instance, in the fact that only three of these 131 cases were of the simple suppurative variety, or that in 79 cases peritonitis, most often of the diffuse or spreading variety, was the chief reason for the fatal outcome. The three patients in whom the disease was still confined to the appendix were all over 40 years of age and were all self-dosed with purgatives—that is why they died.

There is nothing surprising in the fact that in 64 of these 131 deaths purgatives had been taken. There is nothing surprising in the fact that they had been repeated one or more times —one negro took 13—in 29 cases. It is surprising, however, surprising and humilitating, to find that in 10 fatal cases the purgatives were taken on the advice of a physician, as they were in 13 other cases in which the patients were lucky enough—there is no other word for it—to escape death. The death rate in the whole series for the 651 patients who took purgatives is 9.8 per cent, more than four points higher than the general death rate, and those figures carry their own lesson.

Again there is nothing surprising in the fact that of these 131 patients who died 107 had been ill more than 24 hours and 83 had been ill more than 48 hours before they sought medical aid. The time element in any disease can never be reduced accurately to statistics, but at that, mortality rates and duration of symptoms parallel each other so closely in acute appendicitis that their cause and effect relationship is very plain.

The time element leads logically to a consideration of the so-called or the so-often-miscalled expectant treatment, which was practised deliberately in 12 of these fatal cases. That it was practised correctly in all of them is, of course, too much to say, and certainly it is not unfair to say that it was most unwise to use it in children and in adults advanced in years, since it is well known that in neither of these age groups is it effective or well tolerated. It must be said in all fairness, too, that perhaps some of the patients who were operated on immediately would have had a better chance of life had operation been delayed. We make no dogmatic pronouncements on these points, recognizing, as we do, that expectant treatment is a matter of individual decisions rather than of sweeping generalizations.

There is much to be said, furthermore, on both sides of the question. In the debate that raged in English medical circles a few years ago, precipitated by Sir James Berry's ill-timed suggestion that delay be practised in all cases of acute appendicitis, the final decision was slightly in favor of conservative treatment for selected cases. There were many, however, who agreed with the distinguished surgeon, A. J. Walton, in his categoric statement that operation is urgent in all cases, regardless of when the patient is first seen, since there is no such thing as a subsiding acute appendicitis. Certainly the expectant mode of treatment must be decided upon only after careful, almost prayerful study of the individual case, and even then with full realization, as Heyd says, that while some individuals by the grace of God may develop localized abscesses, others will not, and no man may say what the outcome will be in any given case. It must be emphasized, too, for the point has not been sufficiently stressed, that the all-important complication of appendicitis, as Dieulafoy first pointed out, is not peritonitis but rather the toxemia which accompanies it and against which expectant treatment is of no avail.

In only 21 of these 131 fatal cases was simple appendectomy done, and one is tempted to speculate whether in this group something more should not have been done. At any rate, it is not surprising to find that 76 other patients were submitted to cecostomy or that the death rate for this procedure in the whole surgical group was 21.6 per cent. We have no doubt, as we have said in previous communications, that this operation is frequently employed when it is not necessary but we also have no doubt that it was very often a life-saving procedure, and our criticism, as always, is not of the procedure but of the pathologic state which made the procedure necessary. Two deaths occurred in patients who were treated only by colpotomy, and of the wisdom of that operation, which is correctly described by negro patients as a "blind" operation, we have very grave doubts.

It was easy to determine of what most of these patients died. Most often it was peritonitis, sometimes associated with a frank ileus and practically always accompanied by an overwhelming toxemia, the deadly character of which we have already commented upon. Mechanical obstruction accounted for another small group of deaths. Pulmonary, cardiac and cardiorenal complications played their part, particularly in the older patients, many of whom, perhaps, could have survived the acute disease except for their background of organic disease. Only one patient died of an ascending thrombophlebitis and only three of subphrenic abscess, a singularly small proportion, exactly as in the comprehensive study of J. M. T. Finney, Jr. There were three deaths from embolism, all proved by autopsy, two as the result of the anesthetic, and one each from mesenteric thrombosis, cerebral hemorrhage, and acute gastric dilatation. We believe we are correct in attributing one death, a few hours after operation, with extreme hyperpyrexia, to the so-called liver death syndrome. In six cases, in three of which recovery had been confidently expected, death occurred suddenly and without warning. Since autopsy was not permitted we are at a loss to explain them, for we are loathe to attribute them to the facile resort of embolism.

Why these patients died is another matter. A large number of them, in some instances abetted by their physicians, took purgatives, and it is easy to explain why they lost their lives. Others, in the face of increasingly serious symptoms, delayed seeking medical aid, and in this group, too, physicians were not always free from blame. But many times neither physicians nor patients seem culpable. When acute appendicitis begins with such symptoms as dysmenorrhea or headache or anorexia or malaise, when it develops along with an upper respiratory infection or measles or an attack of asthma or something equally unrelated to abdominal disease, it is difficult to foretell what the future holds. In one case there was every justification for the diagnosis of acute alcoholism, on the basis of which operation was delayed for more than 24 hours. In nine cases there was every reason for assuming that the dietary indiscretion which preceded the attack was responsible for it. There is much to be said in extenuation of the physician who resorts promptly to a purgative when he is called upon to treat a child who has just eaten thirty apricots, or a negro male who, when seized at midnight with pain and nausea, arises from his bed and eats two pork chops and a cocoanut pie, washed down by a bottle of beer.

Finally, three of these fatal cases carry the warning that when conservative treatment has been instituted, or when only incision and drainage has been done in the acute attack, the interval removal of the appendix must be done without loss of time. In these three cases previous incision and drainage had been done, in one case only three weeks before, and the recurrent attack proved fatal.

In 19 of the 25 cases in which no surgery was done the diagnosis was established or confirmed at postmortem, and in the remaining six the clinical picture was clearcut. Peritonitis was a factor in them all. Eight of the patients had taken purgatives, two of them at the direction of a physician, and three others had had medical attention before admission, in one case for more than a week. That means, to put it bluntly, that five of these 25 patients perished because they were incorrectly and unwisely treated by the physicians to whom they had confided themselves, a tragic commentary on the evil that is wrought by want of thought; in every one of those cases, to judge from the history, the diagnosis might have been at least suspected, even if it could not have been made positively.

In the hospital, too, the diagnosis was sometimes missed. One patient admitted many months before for decompensated cardiac disease, another bedridden for years with pulmonary tuberculosis, died without any suspicion of their state until autopsy, because all the attention was concentrated on their chronic diseases and it was forgotten that the mere existence of one pathologic state is no protection whatsoever against the development of another. In three other cases the diagnosis was missed in the hospital and discovered only at autopsy. One patient was considered to have nephritis and perhaps a temporary incarceration of the inguinal hernia which actually had existed for many years, and another was being prepared for operation for a supposed malignancy of the cecum when she died. The third patient gave a perfect history of arachnoidism and presented all the physical signs of that condition. He had been treated by repeated purgatives before admission, and he died five days after he entered the hospital, autopsy revealing an ascending pylephlebitis and a liver riddled with abscesses. The most astute of diagnosticians could scarcely have suspected the truth.

Fourteen of these patients entered the hospital moribund, death occurring in from two to 21 hours, and obviously nothing could have saved them. In five other cases, as we have just pointed out, the abdominal disease was overlooked because of the presence of organic disease, and treatment was instituted on a mistaken diagnosis. In the remaining cases conservative treatment was undertaken as an elective matter. Whether these patients would have recovered had surgery been done, whether the decision to withhold it was wise or unwise, are questions that we cannot answer. We merely point out that in the six cases in which expectant treatment was undertaken deliberately, it did not succeed.

The profession's responsibility for the mortality of acute appendicitis is quite clear. They can reduce the death rate only by keeping in their minds at all times the fact that appendicitis is a typical disease in less than half of all cases, and may be initiated with any sort of symptom complex and any sort of bizarre, extra-abdominal symptom. We are not, be it noted, suggesting operation on flimsy excuses in such cases. We are merely proposing that the physician, until he knows definitely what he is dealing with, refrain from treatment, particularly the administration of purgatives and narcotics. We are merely proposing that if he cannot make the diagnosis, he should call a surgeon to his aid without delay and share the responsibility with him. If the surgeon, after careful consideration, cannot eliminate appendicitis, then it is his clear duty to open the abdomen and give the patient the benefit of the doubt. Such a course, it is true, will result in a certain proportion of unnecessary emergencies, though we are not so sure that they should be called unnecessary. The fact that the intra-abdominal pathology does not correspond with the symptom complex is no reflection upon the surgeon's surgical judgment. If the appendix is not the source of the trouble, at least it will be eliminated as the source of further trouble. If it is less acutely inflamed than the surgeon had reason to suspect, at least he will have made certain that it will not go on to perforation and peritonitis—it must be remembered that in this disease no man can tell what a day, or even an hour, will bring forth. When the patient with acute appendicitis is first seen, Murphy pointed out many years ago, then is the day of salvation and then also is the acceptable time for removing the appendix.

So much for the responsibility of the physician and the surgeon to the patients they are called to see. What of their responsibility to the patients they have not seen? That responsibility is one that medical men are coming more and more to accept. It is quite possible to do something for these unseen patients, something enormously important. The physicians of Philadelphia have proved that. In 1927 they began a campaign of public education in regard to appendicitis, and within five years they had reduced its mortality from 5.97 to 3.44 per cent. Six factors, according to J. O. Bower, have played a part in that reduction namely: a marked increase in the number of cases of appendicitis, earlier hospitalization, a diminished incidence of peritontis, particularly of the spreading variety, its better surgical management, and, perhaps most important of all, the less frequent administration of purgatives. Bower goes even further. He has no hesitancy in declaring, he says, that if a publicity campaign of increasing intensity can be waged against the abuse of laxatives and delay in hospitalization, within the decade spreading peritonitis will be as rare in Philadelphia hospitals as typhoid fever now is. And in the absence of spreading peritonitis, it need scarcely be pointed out, the mortality of acute appendicitis will be reduced to an irreducible minimum.

The mortality of acute appendicitis in the New Orleans Charity Hospital may fairly be taken an an index of the situation in this community for its population, particularly in these depression days, is a cross section of the community life. But the mortality of acute appendicitis in that institution is more than two points higher than the mortality reported from the Philadelphia hospitals. We see no reason why the death rate here should not be just as sharply reduced as it has been there, by exactly the same sort of campaign as was waged there. And so, as the conclusion of this paper and, appropriately, on the night when this Society is hearing the report of its endeavors for the past year, we would propose, as part of its work for the coming year, the institution of such a campaign in this community, to be prosecuted by a vigorous committee, with the cooperation of our whole membership. We offer that as a serious proposal, and if it is adopted with the same seriousness, we have no doubt of its success.

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# THE VALUE OF X-RAY STUDIES IN DISEASES OF THE GASTRO-INTESTINAL TRACT*

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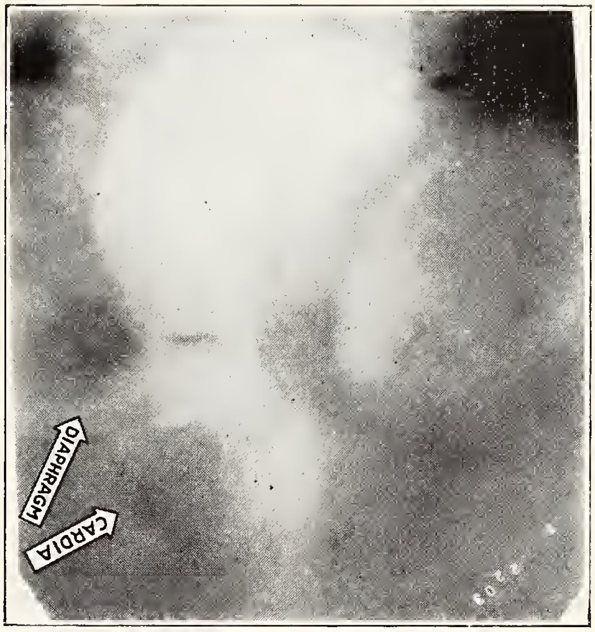
The credit for the discovery of x-rays unquestionably belongs to Wilhelm Conrad Roentgen who in 1895 announced to the scientific world his discovery of x-rays. Two years later in 1897, a Harvard professor, Dr. Walter Cannon, had an idea that the then newly discovered x-rays offered the opportunity of seeing inside the stomach. He experimented and found that an inert substance, bismuth powder, was opaque to x-rays, and when swallowed was harmless to the stomach and intestines. Today, we make use of a barium meal or barium enema to study the exact size, shape and position of the digestive tract. If any abnormalities are present, we can detect them easily fluoroscopically and radiographically.

Thus, it has been said that with x-rays to aid him, every physician is a "William Beaumont", and every patient, an "Alexis St. Martin." No wonder that in the short period of its existence, roentgenology has developed a very interesting history and a voluminous literature. Students of medicine should take a keener interest in the study of x-ray as a very valuable method to interpret disease. Medical schools should furnish greater facilities and allot more time to the under-graduates and post-graduates, combining the clinical side with the x-ray laboratory into a single unit of study. The benefit would be manifold; thus a closer relationship would develop between the clinician and the radiologist. The clinician will become a keener and more careful observer of facts, signs and symptoms in a given case and to be better able to correlate them intelligently with the x-ray findings. The roentgenologist, on the other hand, familiarizing himself beforehand with a clear history, will be able better to interpret shadows, lines, and objects. Again, the roentgenologist in some instances should not attempt to make a diagnosis without the aid of the clinician who knows the facts in a given case; neither should the clinician give a hasty and final opinion without the roentgenologist. This is the principal aim and object of our paper.



To illustrate our contentions, we will present histories and x-ray findings of several most interesting cases.

### CASE REPORTS

Case 1. Mrs. E. M., aged 47, was first studied in 1923. At that time she complained of soreness in epigastric region; fullness in left chest which was always worse at night; sometimes she would awaken with a sensation of a lump in the throat, but felt better in the upright position. Quite often she experienced dyspnea, choking sensations and the usual symptoms of indigestion. There had been no loss in weight and the examination was essentially negative. She was referred for roentgen examination of the gastrointestinal tract and the examination was reported as having demonstrated ileocecal stasis and considerable spasticity of the colon. She improved considerably under symptomatic treatment and returned four years later with identical complaints to which were added a sensation of soreness in the epigastric region. Another roentgen ray revealed a segmented retrocecal appendix in addition to the previous findings. Gynecologic procedures and appendectomy were performed at this time. The patient

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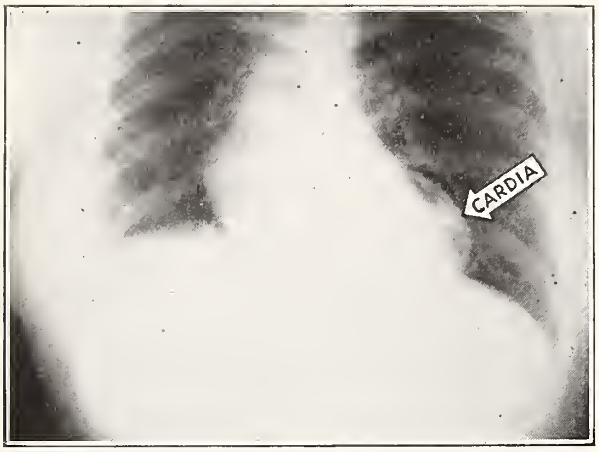

returned in January, 1936, complaining of pain in the left chest and upper abdomen, worse at night or when in the recumbent position, and dyspnea. She felt uncomfortable immediately after taking food and pain came on often while eating and she had to take soda and belch for relief. On several occasions, hypodermics were necessary to relieve pain. The roentgenologic study on this occasion, however, revealed an unusual unexpected pathologic change to account for her symptomatology. All plates revealed a herniation of the fundus of the stomach through the left leaf of the diaphragm; this portion of the stomach definitely displacing the heart to the right.

Case 2. A 45 year old male consulted us complaining of a sensation of obstruction to the passage of food at the level of the xiphoid with associated regurgitation, the symptoms dating back only two months. Three weeks after the onset of his complaints he consulted a physician who had a roentgen ray study of the gastrointestinal tract made and told him there was a diseased appendix. This organ together with a few abscessed teeth were removed but no improvement resulted. When first seen by us, eight weeks after the onset of symptoms, he was unable to swallow solid food and had lost 20 pounds in weight. A nasal tube was passed with some difficulty and revealed normal gastric acidity with a negative occult blood test. Roentgenographic studies made at this time revealed a definite annular deformity involving the cardiac end of the esophagus and also involving the cardia itself. The further course of this patient left no doubt as to the diagnosis of malignancy involving the cardia.

Case 3. Mr. G. H. C., aged 45, presented himself for study, complaining of epigastric pain of several months' duration, relieved at times by the ingestion of food, with no assignable cause for the onset. The past history was uneventful, but the patient was fond of highly seasoned food, the time of meals was always irregular and he used moderate amounts of alcohol. There had been no evidence of loss in weight and physical examination was negative with the exception of local tenderness in the epigastrium below the xiphoid. Laboratory examinations revealed a normal blood picture with an achylia and strong occult blood reaction in the gastric contents on three occasions. Radiologically, there was no evidence of gallbladder pathology. There was a suspicious area at the cardiac end of stomach; the duodenal bulb filled irregularly and there was a constant filling defect along the lesser curvature of the stomach near the pylorus. These findings prompted an exploratory laporotomy at which time careful examination showed only a patulous, somewhat thickened sphincter with no visible puckering. These findings were not deemed sufficiently definite to justify incising the stomach so the gallbladder and appendix were removed. One month postoperatively a recurrence of pain was noted; this was continuous and severe for six months. Another roentgen ray study was made and involvement of the cardiac end of the stomach by a carcinomatous mass was revealed. Autopsy disclosed extensive carcinoma of the stomach.

Case 4. A 27 year old girl consulted us in September, 1935, complaining of pain in the left lower axillary and hypochondriac regions which had been present for one year. These symptoms, she stated, had been distinctly aggravated by coughing or on deep breathing. She had lost 20 pounds in weight and noted that anorexia and nausea grew progressively worse. The illness had been diagnosed as pleurisy and she had been forced to spend one year in bed. Physical examination revealed an emotionally unstable, chonically ill individual with evidence of generalized wasting. The tongue was quite red and beefy in appearance. An extremely large mass was felt in the left abdomen, whether retroperitoneal or enlarged spleen, could not be determined. The liver was enlarged a hand's breadth below the costal margin. The urine showed a trace of albumin with moderate numbers of pus and red cells. The erythrocyte count was 3,215,000; the leukocytes numbered 18,000 and there were 87 per cent neutrophiles. A flat plate of the abdomen revealed a tremendously enlarged kidney filling the left abdomen; a great many renal calculi were visible. The spleen shadow was normal. Operation disclosed a pyonephrosis and nephrolithiasis.

Case 5. J. C., aged 49, presented himself in May, 1931, with epigastric pain which dated back fifteen years. The discomfort was aggravated before meals and at night and was relieved by food and soda. Nausea, vomiting, and bloatedness were absent. There had been a recent weight loss of ten pounds. The patient was a heavy tobacco smoker, but evaluation of the dietary habits revealed nothing significant. A previous roentgen examination eight months ago was negative. Physical examination did not add significant data. The blood picture was normal; gastric analysis revealed on an empty stomach a free HCl of 55 with total acidity of 70; the Ewald test meal 50 free HCl and 65 total acidity. Both specimens were negative for occult blood. Roentgen ray studies at this time revealed very interesting data. The gallbladder was seen to be definitely outlined, absorption of dye was fair but not considered normal; a large sized calculus was seen in the fundus; after the fat meal, there was partial emptying of the dye and the calculus was still visible. The barium meal revealed evidence of hypermotility of the stomach; the bulb was very irregular and extending from it was a large sized diverticulum; beyond that the duodenum was constricted and deformed, the remainder of duodenum being normal; the stone shadow was seen some distance removed from the cap. The six hour plate revealed no evidence of retention; at 36 hours a retention of barium was visible in the cecum and a segmented filled appendix observed. Our diagnoses were :(1) Chronic cholelithiasis; (2) duodenal ulcer; (3) duodenal diverticulum; (4) chronic appendiceal stasis with fixation of cecum. At laparotomy, the existence of a pathological tetrology was confirmed, a diseased appendix and gallbladder were removed and a duodenal diverticulum demonstrated. The duodenal ulcer was left for medical care. The patient has been completely relieved up to the present time.

Case 6. This case was referred to us by an otolaryngologist. The patient was a physician of about 70 years of age. He gave a very interesting history. For over a year he has been annoyed by regurgitation of food immediately after eating and at times while eating. On many occasions he nearly choked during a spell of regurgitation of food. There was considerable loss of weight on account of insufficient nourishment. Fluoroscopic and radiographic examinations verified our suspicion and made the diagnosis easy. It revealed that the patient suffered from a Zenker's diverticulum.

### SUMMARY

A careful analysis of the above cases reveals the following interesting facts. The first case is a diaphragmatic hernia, evidently of the acquired type, the cardiac end of the stomach protruding into the left chest. Her symptoms date back to the year 1923. It is not congenital because there is no evidence of discomfort early in life. It is not traumatic as there is no history of trauma. Acquired diaphragmatic hernias develop in a similar manner as inguinal hernias. They practically always occur at the esophageal openings (Bevan et al.), and through other weak points which may exist in the diaphragmatic muscle itself. Such cases are relatively uncommon. Of 433 cases collected by Murray and Morgan, 181 were acquired. Woolsey in 27 years collected only 28 acquired cases. Harrington reported 51 cases of all three varieties in a period of 20 years at the Mayo clinic. The case record of our patient reveals that two gastrointestinal studies were previously made and the condition was not recognized. In the last study of the case a chest picture was made first and it gave us a clue to the trouble. We then easily correlated the symptomatology with our x-ray findings. A roentgenogram is our only resource in diagnosing such cases and its use has led to the dissovery of many unsuspected and symptomless cases. Fluoroscopic examinations may reveal the condition, but more satisfactory results are obtained after the ingestion of an opaque meal. Drugs will not relieve such a condition; only surgery can offer permanent relief.

In the second case, if the radiologist had first consulted the clinician, a fluoroscopic examination of the esophagus would have revealed the tragedy of an esophageal carcinoma.

In case number three, the x-ray told the tale of a suspicious area at the cardia and a more diligent and careful study would have led us from the start to the tragic road of inoperable cancer.

The excuse for including the fourth case in the gastrointestinal series is the fact that the patient complained of indigestion symptoms, pain, and loss in weight as a result of insufficient nourishment.

In the fifth case, the patient's history of pain and indigestion dates back fifteen years and a careful x-ray study plus clinical findings revealed the real clue to his trouble though this pathologic tetrology is not common in one patient.

Zenker's diverticulum is a pulsion form of a dilatation of the esophagus at its commencement, at its junction with the pharynx. It is very rare. The condition usually occurs in men at advanced age. The protrusion is seen posteriorly through the lowest fibres of the constrictor pharyngis inferior muscle. The treatment is surgical. If that is impracticable the patient must be fed through a stomach tube.

### CONCLUSIONS

The study of diseases of the gastrointestinal tract is not complete without x-ray examination.

A closer relationship between the roentgenologist and the clinician is highly desirable.

Re-examination by x-ray often clinches the proper diagnosis.

Students of medicine should receive a more thorough training in roentgenology of the gastrointestinal tract.

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## SHOULD THE GENERAL PRACTITIONER SELECT THE SURGEON FOR HIS PATIENT?*

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LAKE PROVIDENCE

Since the beginning of time it has been the inborn right of man to do what he wanted and at the time most suitable to his convenience. In this he has been protected, provided he stayed within the law (or laws) that governed his tribe or nation. This right we still have, and beyond a question of a doubt, it is exercised to its fullest.

In presenting this paper for discussion I shall attempt, in a way small as it may be, to suggest that the general practitioner exercise his rights of suggestion and advice to his patients in making a proper selection of an able and conscientious surgeon when this duty confronts him.

Well do we know, and hear so often, when we advise our patient to consult a surgeon for proper and further relief of his ailment: "To whom must I go Doctor?" So often we fail to advise, or to name, one or more capable surgeons. Why? I can only suggest that this error is due either to our inability, from lack of contact with the surgical centers, or to lack of cooperation.

The larger communities and cities are, in most instances, well equipped with hospital facilities, and for the greater part we find a large number of graduates of medicine and surgery, some from reputable institutions and some from colleges of learning of a lesser degree, aspiring to be surgeons. Well do we know that there are a great number of our confreres who practice the art of surgery in a manner becoming the surgeon of repute, those whose end results bespeak their dexterity and ability; yet there are some of our confreres, some of them our friends, who either believe they can do proper surgery or make an attempt, in such a manner, to get by in the best way possible.

I do not wish to make any suggestion of denial to the young man, or even the older one, the right of practice to make perfect, for those who are making an effort to learn I have the highest regard. Yet, those of this group should travel in slow speed before they pose as surgeons or until they are qualified. In the words of our able Section Chairman, "we have surgeons and operators."

In the selection of a surgeon for our patient we should be guided by what we really know about the confrere, as to his ability and his general qualification and not rely on hearsay. So often we hear of the surgeon who removed a man's heart, laid it on the man's chest, sewed it up and put it back in its place and the patient convalesced without interruption; we hear of this, that and the other man, in some distant or nearby city or town, who has done the most remarkable things, yet we only hear this, we know not of our own knowledge. True it is, there are some of us who are not able to distinguish between the surgeon and the make-believe. Let me say to you now that if there are any of this group in our midst they should not make any attempt to recommend to their patients a consultant, they would be better off letting the patients make their own selection.

I have tried, in my humble way, during many years of general practice, to note the results obtained by surgeons on patients submitted to their care; noting the general condition of the patient when he reports back to me, whether or not he has been relieved of his complaint, and too, the cosmetic state of the surgical wound, and if the person shows the result sought, remembering at the same time that it is not possible for the surgeon to obtain results for the incurable.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

I try to steer shy of the consultant who spends more of his time selling himself to doctor friends than in perfecting his art, or at least putting in more time in the study of the human ills and methods for relief. It is not always the man who publishes or reads the greatest number of papers at society meetings, or the one whose picture adorns the newspapers, who should be selected.

Of course I realize that sometime a little side-line advertising or self flattery makes one feel very proud of oneself. I do not mean to cause any impression to be formed among you that because a man writes or reads a large number of papers on scientific subjects, or allows, or encourages his picture in the newspaper that he is not a good surgeon; I merely leave this thought with you. I am yet of the opinion that the quiet and unassuming are the best group to seek when making a selection.

So many times our patient is sent home to us in such a poor physical condition that we have to make the best of the matter. This is very difficult for the general practitioner to do, but if he is of the ethical type he will protect the surgeon (or operator).

The day of the stock appendix, gallbladder and the like has just about gone from us. However there are still some operators who proudly exhibit to the family and patient the terrible organ that has been removed. The real surgeon sends his specimen to the laboratory for pathologic study and diagnosis and is glad not to handle it again.

Within the past year I have witnessed two sad instances. One patient was cared for by a man presumably, and I might say, of good surgical ability; the other cared for by the fellow who looks good on the surface, so to speak; both are quite gifted in the matter of visiting societies and reading papers, both are quite often noted in newsprint.

The first case referred to was operated by the "specialist". He allowed the patient to return home after a rather stormy, partial recovery or convalescence. A few days after her arrival home I was called to see her, she was very septic, was running a rather high temperature and had other symptoms characteristic of her postoperative condition. Palliative treatment was used and the surgeon was consulted over the telephone, suggesting that she be returned to his care. He replied that she was a rather disagreeable patient and hard to handle, difficult to satisfy, but if I insisted he would receive her on her return. Several weeks have now elapsed and she is yet under his care, in a hospital. This is not a free or E R A patient, the husband is well able to pay his bills. Would I be justified in referring further work to this man? I suggested a consultant to this patient but she wanted to choose for herself, this she has done much to her regret.

The other case in question did not report to the surgeon whom I recommended, for reasons better known to himself he selected another. Consultation was advised and the surgeon called; he was treated as if he were not wanted and naturally excused himself (in this he may have acted wisely or unwisely). Additional surgery was attempted, as a last resort, but the poor fellow died. I will ever believe that this operator, not knowing what else to do, and having a good fee in sight, thought he may as well operate, as it may have been good advertising had the patient survived.

My experience as a hospital interne, and a member of the Army Medical Corps, as well as my years of general practice, have proved to me all the more, that I should in all cases select the surgeon for my patients, and insist on my advice being taken, even though I have failed in a few instances.

So many times politics, fee splitting, personal feelings and even religion play such a great part in selection that the general practitioner fails miserably in making a proper choice, then the sick man is at the mercy of the two physicians.

I beg of you, my fellow practitioners, to use every effort to acquaint yourselves with men (surgeons) of ability, set aside petty feelings and personal dislikes and you will have returned to you your patient in good condition and he will respect your opinion and ability all the more for it.

DISCUSSION

Dr. W. P. D. Tilly (New Iberia): I am not getting up to reveal the secret sins of society. I known what an important subject this has been in the past as one who had the privilege of being connected with large hospital centers and who is especially proud to say that at one time of his life had forty per cent of the medical profession of New Orleans visit from time to time, patients in his own hospital center, and who was the promoter of Mercy Hospital. There we have had the privilege of learning the sins of others, of our own confreres, at the bedside and at the operating table.

As we all know, Dr. Matas said a few years ago that it took five years, at least, to master surgery. Just because we had received our diplomas and were privileged by the state to practice surgery, it was essential that we be under a master. Many of our young men started at old Charity. The privilege of these young men was to hold possibly a retracter from time to time for some master, to watch and see. They were the first assistants. They were especially privileged, these young men. Occasionally, as time passed, they were given the privilege of operating themselves, under a guiding eye. Privately, that was a state institution, with well regulated laws and care. They stayed one year or two years. Then they went into the rural districts or towns, with no provision for surgery. These young men had to do the best that could be done.

Some years ago, I asked that great man at Charity, Dr. Bachelor, "How do you force a patient to come to the operating table?"

What did he answer? "If I remember well, you were a country doctor in your youth, and you said you sent many a man, woman and child to the Charity Hospital. So today I will let you tell the story yourself."

It is not so very easy to force patients to any other doctor. They have their special privilege. Even if they have a family physician, the confidence they place in that man's knowledge at the bedside is unusual. You could not make them change.

My first abdominal operation was performed right here on the outskirts of this town, in the woods, with my stethoscope tube for drainage. I begged the family to consent to send this patient to the hospital. I said that because I was not qualified then to operate. I was really a student of medicine. This patient lived. Today I can go back there and think kindly that I saved this human life.

The young men in the hospital centers have the privilege of being family physicians first, or society physicians around our great centers, like New Orleans. These young men have the occasional privilege of having the family place confidence in them, that they are qualified to operate, because they were interns in some great center of medicine.

What to do with this young man who had one year as an intern? He comes to the private hospital, "May I admit this patient to the hospital?" You have to do something for him. If you feel he is not qualified, the hospital should have a special committee of surgeons, to help this young man so that he can go along with his knowledge of surgery and become a future surgeon. If we do not do that, we are not able to carry that young man to the point where he will ever become a surgeon. We are obliged at all times to help this young man. To force the patient on somebody's responsibility is something a private family physicians cannot always do. You can recommend, but they very seldom accept. At least ninety-five per cent of the patients are admitted to the hospital center by the surgeon himself. If you had studied the history of patients carefully, you would find they had been advised by half a dozen in the family before they finally selected their own personal surgeon.

Dr. M. H. Foster (Alexandria): May I add a remark and leave one thought in regard to the paper which the gentleman has just read in reference to the cystoscopic investigation of the kidney case?

In the first year of my location in my specialty, a general practitioner brought in a patient with the diagnosis and recommendation for operation already fixed up. The determination had previously been arrived at that a nephropexy was to be done, and I was engaged and persuaded to do the nephropexy without carrying out the cystoscopic and urologic investigation, which should have been done. The family refused to have the investigation done, which I insisted upon. It was my first year in my specialty. I was persuaded to do a nephropexy.

Subsequently, without symptoms, the patient found there was a large stone in that kidney, and I have the chagrin of watching that patient on the streets to this day. The doctor is dead and gone, but I will never do that again.

# HEADACHE AS A SYMPTOM OF GROSS INTRACRANIAL LESIONS*

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The physiological explanation for head pain is not yet definitely known.[1] However, intracranial surgery under local anesthesia has demonstrated that the cerebral substance itself is insensitive to painful stimulae while the dura, especially along the paths of the blood vessels, is very sensitive. The sensory supply is largely through branches of the fifth nerve, though the dura of the posterior fossa also receives afferent fibres from the vagus and from first and second cervical roots. Whether or not the sympathetic plays a part in the transmission of pain sensibility from the head is a matter of argument. Neilson[2] thinks that the sympathetic acts directly in transmission of pain sensibility, while Davis and Pollock[3] think that efferent sympathetic stimulation results in stimulation of the ordinary sensory pathways in the cranial nerves. In the so-called reflex headache, stimulae in the viscera in the distribution of the glosso-pharyngeal and vagus nerves result in pain in the area of distribution of the trigeminal. Headaches of toxic origin are probably produced by intracranial circulatory changes. Intracranial disease apparently produces head pain through change in intracranial pressure, and as a result of increased bulk and disturbance of the circulation of the cerebral spinal fluid, or by direct irritation of the sensory supply of the dura.[4]

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

A discussion of all the intracranial diseases, of which headache is a symptom, is obviously impossible. Migrainous syndromes and psychogenic headaches as well as many of the organic diseases accompanied by headache cannot be considered, but a few of the organic conditions in which headache is a fairly constant symptom, and indirectly at least of great diagnostic importance, will be discussed.

Headache is probably the most constant symptom of brain tumor. It usually occurs early in the disease but may be very late, or be so mild that it receives little attention. At first the headache is usually intermittent and mild, occurring in the morning or during the night. Later it becomes more constant and of greater severity. Sneezing, coughing, straining, and other factors that increase the intracranial pressure aggravate the pain. Likewise it is relieved by lowering intracranial pressure though responding poorly to the usual analgesics. The pain has most often been described as "bursting" in type[5] although there is really nothing definitely characteristic of the pain itself.[6] Brain tumor produces headache by increasing intracranial pressure with resulting stretching of the dura, by direct increase in intracranial bulk and by invasion of or pressure on the dura and its processes, and occasionally by direct irritation of the fifth nerve.[1] Increased intracranial pressure in most cases results from obstruction in the ventricular system or direct increase in intracranial substance bulk, but theoretically at least the hypertension may be the result of the obstruction of the vein of Galen and in the absorbing mechanism[8]. It is possible for tumor to exist for a long time without the production of head pain, provided the growth is slow and the location such as not to result in increased tension. It is probable that the ready expansion of the skull along suture lines accounts for the minimal headache recorded in some cases of brain tumor in children.[9]

The situation of the pain is usually of no localizing value. However, there are occasionally tender areas over a tumor and constant suboccipital pain accompanied by muscle spasm may be of localizing value in posterior fossa lesions. The location of pain may be constant or vary from time to time, or be generalized throughout its duration. It seems that most tumor headaches are probably frontal.[10]

The headache of brain tumor is accompanied sooner or later by other general signs of increased tension and by focal signs and symptoms. Space does not permit a discussion of these, although the diagnosis of brain tumor depends on a neurological search for these findings. The headache is of value only in indicating the need for further study, and has no characteristic which is in itself diagnostic.

In intracranial abscess the production of head pain seems to differ in the chronic and acute lesions. In chronic abscess the type of head pain is similar in many ways to that produced by tumor, that is, it is an increased intracranial pressure headache. This is as might be expected, as chronic abscess is clinically differentiated from tumor with greatest difficulty or not at all until operation reveals the nature of the lesion. In acute abscess the pain is usually persistent and very severe. In neither lesion is the headache diagnostic or necessarily even suggestive of the type of lesion, for it differs in no respect from head pain produced by other intracranial lesions. As in the case of tumor it indicates only that there exists a pathological intracranial physiology which requires further study for demonstration of the neurological signs and symptoms.

The head pain which accompanies an intracranial vascular insult is produced in a manner quite similar to that of other intracranial lesions that is, there occurs a disturbance of intracranial pressure or meningeal irritation or both. In embolism and thrombosis there is marked edema of the infarcted area with resulting increase in bulk. In hemorrhage there is increase in intracranial bulk plus direct meningeal irritation in those cases of bleeding in which the free blood reaches the meninges. This last condition is well illustrated in spontaneous subarachnoid hemorrhage[11] in which the sudden onset of excruciating head pain, later followed by rigid neck and bloody fluid, is the outstanding finding. The head pain of acute intracranial vascular lesion is accompanied by the usual signs of central vascular disease. These signs, rather than any characteristic of the pain, are useful in differential diagnosis.

Meningeal irritation produces extremely severe head pain because of the direct stimulation of the principal intracranial sensory supply. The irritation may be produced by any of the usual forms of meningitis, acute, chronic, specific or non-specific, or by non-infectious irritants, such as air, free blood, or trauma. These headaches are accompanied by the usual signs of meningeal irritation, that is, rigidity of the neck, or Kernig's sign, plus the findings directly associated with the individual irritating agent. In chronic headaches occurring as a sequela of these conditions, injection of air is frequently of great help in diagnosis and of therapeutic value.

The so-called spinal puncture headache is probably caused by an acute temporary disturbance of intracranial pressure ratios. Masserman has found that shock and edema play more part than displacement of cranial contents, and that the severity of the headache is directly related to the resulting physiopathologic change in the tissue. Rapid removal of 10 c.c. of fluid caused vasodilation which did not immediately subside after replacement of fluid, while rapid removal of 35 c.c. or more caused constriction of the ventriculo-subarachnoid spaces as a result of vascular engorgement and edema in the brain. This latter finding was accompanied by pleocytosis in the fluid and by clinical signs of meningeal irritation.[12]

## SUMMARY

Headache, while a frequent symptom of intracranial disease, is seldom sufficiently characteristic to be of aid in differential diagnosis. It is usually symptomatic only of a disturbance of intracranial pressure or of direct irritation of the sensory supply of the dura, and is of value only in indicating the necessity for neurological study to identify the intracranial lesion producing it.

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## DISCUSSION

Dr. C. S. Holbrook (New Orleans): I agree with Dr. Duncan that headaches are symptoms frequently found in organic lesions of the brain, but unfortunately they are more frequently found in lesions that are not organic. The diagnosis of tumor of the brain is often made on the history which generally carried with it a description of considerable headache, increased intracranial pressure, and other symptoms. Headache due to tumor is usually associated with neurologic signs, especially the choking of the discs or papillary edema. Seldom is headache explained on a tumor basis without something else than headache. Choking of the discs is a very important finding, especially when associated with other neurologic disturbances.

The most difficult headaches that I see, from the differential point of view, are migraine and functional headaches, those due to some disturbance in the emotional life of the patient and his inability to adjust himself to life-situations. Migraine does almost anything in the way of simulating intracranial lesions. I recently saw a patient who was blind for three days as a result of migraine; brain tumor had been suspected, but it was a typical case of migraine. The symptoms of migraine are so marked at times that the headache is almost continuous; patients suffer constantly for weeks at a time, and they present symptoms which simulate either extensive intracranial lesion, like a tumor, or some other organic lesions. Today, with the roentgen ray and the assistance obtained by ear, nose, and throat specialists, sinus headache can usually be confirmed or ruled out. In thinking of headaches, I have the disagreeable feeling that I seldom can be quite sure whether I am dealing with migraine or whether I am dealing with a serious organic lesion. Before arriving at the conclusion that the headache is caused by a gross intracranial lesion we must be able to demonstrate some other evidence of such a lesion.

Dr. Roy Carl Young (Covington): I have enjoyed this paper very much. It brings out the very important fact that headache is a symptom. In a case with the symptom of headache, one must determine at once if it is due to an intracranial lesion or a lesion outside the cranium. It then becomes a problem to decide as to the cause of the intracranial symptom, and we must use in this diagnosis every diagnostic procedure we possibly can: roentgen ray, frequently injections of air or encephalograms, as Dr. Duncan has mentioned, manometer readings of the spinal fluid pressure and a complete analysis of spinal fluid, besides everything pertaining to the blood chemistry and other diagnostic procedures.

I was especially glad to hear Dr. Duncan comment upon the mehanism of these headaches.

In regard to spinal puncture headaches, or post spinal puncture headaches, it has been my experience during the last year or two, that where we were unable to relieve the patients very much with pituitrin and codein, that very often big doses of magnesium sulphate given the morning after a spinal puncture will effect great relief. This brings out the point in the mechanism of post puncture headaches that there is a certain amount of brain edema.

I think Dr. Duncan's paper is very interesting and it is certainly very scientific.

Dr. H. R. Unsworth (New Orleans): My experience with headache, which has been from the standpoint of neuropsychiatry, has been very distinct from the clinical standpoint.

First, it had appeared to me that lesions of spinal origin give more of a characteristic headache than any other central lesion of which I know.

Second, that cerebrospinal syphilis is very often accompanied with these severe headaches. It is well to remember this in neurologic work, when the blood Wassermann is negative as it often is in cerebrospinal syphilis.

Third, a lot of people of nervous make-up, that the question of arterial hypertension has to be considered.

I am afraid that most specialists trying to explain symptoms consider that patient only from the standpoint of a particular field, and very often overlook the explanation of that symptom in some other part of the anatomy, so that a nervous, highstrung individual may make you suspicious of intracranial pathology, yet if you take the blood pressure that individual will have hypertension.

In regard to the therapy of headache, I have often obtained satisfactory results from spinal drainage in headaches that cannot be explained in any other way. Headache not only accompanies hyper—but hypotension. Therefore, as Dr. Duncan says, no reliance can be placed on the symptom of headache.

Dr. Thomas C. Moody (Lake Charles): I am very interested in this paper because I have a patient who complains with the type of trouble Dr. Duncan describes. I see Dr. Duncan's paper is confined especially to cases which have intracranial lesion and so far as headache in general is concerned, he does not discuss that.

This patient I have suffers intense pain without any symptoms except pain. Blood pressure is normal, eyegrounds normal, pupillary response normal. Roentgen rays have shown nothing. Blood Wassermann and spinal, both negative, yet that man suffers the most intense pain I have ever known a man to suffer. He had no temperature until Friday night when he began having temperature to 104°. Now, I want to find out something to do for this man, if possible.

I first decided after all these things were negative, it must be luetic and put the man on potash. I increased to 60 grains and he got relief in four days. Now I am giving him 100 grains and I do not know yet whether that is going to relieve him. I recall one patient who had syphilis who took 480 grains to keep him relieved. I do not believe there is any other case recorded where a man took that much. He took it for two years.

Now, this case I have I don't know what else to do, as all of those things have been done and nothing relieved him. I instructed him to take a grain of morphine. It takes that much to keep him at all quiet. I would like Dr. Duncan to see this case.

Dr. Roland Young (Covington): In regard to headaches in general, there is one particular type that is most common, I think, and is sometimes a source of a great deal of trouble to the general practitioner, and that is the headache of hysteria.

Hysteria is a protean disease of the nervous system, functional in character, and what might be termed a mocker of all other diseases. In hysteria generally you do not see the vasomotor disturbances that you do in some of these functional headaches, but yet there is a marked emotional reaction. When vasomotor disturbances are evident and more or less persistant and headache is noted frequently gynergen will give relief.

In hysteria I advise the general practitioner to see the patient during a couple or more attacks before any definite conclusion is reached and if he will notice carefully, he will see that the patient is not suffering from headache in the true sense of the word but that the headache is of psychogenic origin.

In regard to these intractable headaches which Doctor Moody referred to I advise complete neurologic examination and, if necessary, encephalography.

One other word and that is the type Doctor Unsworth referred to, in regard to lues. I think we more often find these headaches in the vasculomeningeal type of cerebral syphilis.

Dr. Homer Dupuy (New Orleans): Dr. Duncan has mentioned as a cause of these headaches tumors and abscesses. I limit my remarks entirely to cerebral abscesses.

It has been my good fortune to see more cases of cerebral abscesses on the left side than on the right. Luckily for the patient, luckily for the doctor! Why? Because if the patient is right-handed, with cerebral abscess on the left side, whether it be caused by an abscess of the middle ear, mastoid, or what not, we can often localize the seat of trouble for the neurologic signs. What are they? In right-handed persons, with speech center on the left side, the first sign I noted was this: the loss of word-memory. The patient is perfectly conscious, temperature about 99, pulse normally slow, 40 to 50. Out of six cases four gave me this sign. Show the patient a watch or a rose, and ask him to name it. He smiles, "I know the name, but can't call it." That is invaluable proof that your trouble is in the left temperosphenoid lobe.

I believe it would be a great thing if every case of brain abscess was on the left side, and every patient with brain abscess was right-handed, because these signs of loss of word-memory can help you in finding the abscess and curing the patient.

Dr. Dean H. Duncan (Shreveport): I am extremely grateful for the discussion this paper has received. It seems to have struck a note of interest.

Although I had not intended discussion of headache other than that associated with organic intracranial disease, I am glad that some mention was made of other types of head pain. In evaluation of the so-called functional and organic cases, I think that one's viewpoint very frequently depends on how long one is permitted to observe these cases and in how many instanes one is able to follow them through operation or autopsy.

At present nothing definite can be said concerning etiology of the migraneous headache. Apparently a variety of factors are involved and each case merits the same intensive study given other types of head pain.

In the psychogenic headache, physical and laboratory findings are absent and psychological factors definitely present. It is well to beware of classing a case as psychogenic merely because physical findings are apparently negative unless definite psychological factors can be shown to be present.

I appreciate very much the discussion which this paper has received.

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# TOURO INFIRMARY'S OBSTETRICAL SERVICE

## AN ANALYSIS FOR THE YEAR 1935 BASED ON A NEW RECORD SYSTEM*

WALTER E. LEVY, M. D.†
and
HARRY MEYER, M. D.†
NEW ORLEANS

As statistical studies are rather boresome to the average doctor we are inclined to present this preliminary report almost in a half-apologetic manner. However, when such statistics will yield some very pertinent facts, both for the betterment in the management of fairly large maternity service, and in actual human re-results, and that, if the keeping of such detailed records and the tabulation of the same can produce such results, we feel that such is justified.

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*Read before the Orleans Parish Medical Society, February 10, 1936.

†From the Department of Obstetrics, Touro Infirmary and the Graduate School of Medicine, Tulane University.

The present system of records and their method of tabulation were introduced on the Touro Infirmary Maternity Service on February 1, 1935. They comprise in almost absolute detail the private cases and the public ward cases delivered in the institution, and the dispensary cases delivered in the homes. They also comprise, in less detail, the cases delivered on the Hutchinson service of Tulane, and the Child Welfare Association cases, in so far as these affect our percentages on the public ward at Touro. (All abnormal cases of Hutchinson and white Child Welfare Association are hospitalized at Touro.)

During the eleven month period under consideration, a total of 752 cases were delivered in the institution, of which 259 were public and 493 were private. Now to get a true picture of the incidence of abnormalities and morbidity, it is necessary to consider the total number of cases delivered by the three agencies from which the public ward cases are derived. These amount to 1014 white cases. So as to make the figures of the private cases comparable, we questioned the men bringing such cases to Touro and find that they do practically no home obstetrics at all, and such figures are thus reliable. (Fully 90 per cent fall in this category.)

The only colored cases considered in this report are those handled by the Home Delivery Service of Touro, and are not included in the above totals.

In the institution, a total of 424 primiparae were delivered, 256 of which were private and 236 were public ward cases. The multiparae totaled 337, of which 236 were private and 91 public ward cases. Thus it can be seen that as regards primiparae, there were approximately 1.5 as many private cases as there were public cases, whereas in respect to the multiparae there were approximately 2.5 as many private as there were public. Likewise, it can also be shown that the private cases were nearly equally divided, whereas the primiparae were almost twice as numerous on the public service. These figures are presented to show something of the comparative make-up of the two services.

### CESAREAN SECTIONS

During the period under consideration, there were a total of 52 cesarean sections done in Touro, of which 38 were private and 16 were public ward cases. This gives an incidence of 7.7 per cent and 6.1 per cent respectively. Now since the private cases represent about 90 per cent of all private obstetrics done by the men who bring cases to Touro, it can be seen that an approximately corrected incidence would be about 6.5 per cent. If the total cases of the three free agencies be considered, it will be seen that the correct incidence for the public ward cesareans will be 1.59 per cent, or roughly 16 per 1000 cases.

It may be of great interest here to state, that of 314 colored cases delivered by the Touro outside maternity service, only 5 were cesarean sections, or 1.5 per cent. This low figure, we believe, is demonstrative of two very great facts; first, that the so-called flat rachitic pelvis, per se, does not exist to any great extent in our true Southern negress, and secondly, that a great many more women would deliver per vagina if only given a chance.

Of the public ward cesareans, six were primiparae and ten were multiparae.

### PUBLIC WARD SERVICE

#### Cesarean Sections

#### Remarks—Indications

Gravida

VI: Second section; rigidity of cervix
I : L. O. T.; funnel pelvis; rheumatic heart disease.
I: Flat pelvis; test of labor
I: Pre-eclampsia; 40 year old primipara
II: Pre-eclampsia; second section (1st for disproportion)
IV: Gen'l. contracted pelvis; pre-eclampsia (sterilization)
III: Gen'l. contracted pelvis (sterilization)
II: Breech; funnel pelvis; pre-eclampsia
III: Complete placenta previa
I: Funnel pelvis; pre-eclampsia
II: Fibroid uterus; transverse presentation
I: Funnel pelvis
II: Gen'l. contracted pelvis (sterilization)
I: Gen'l. contracted pelvis
II: Second section
II: Funnel pelvis
I: R. O. P.; funnel pelvis; mitral stenosis

I: Gen'l. contracted pelvis; hyperemesis gravidarum
III: Breech; gen'l. contracted pelvis
I: Postmaturity; 31 year old primipara
II: Telangiectasis
I: Congenital defect of aortic valve; rigid cervix
I: Marginal placenta previa
I: Breech; funnel pelvis; pre-eclampsia
II: No indication given
III: Rigid cervix; transverse presentation; bag induction failed; vag. sect.
I: Flat pelvis
I: Flat pelvis
I: R. O. P.; high forceps (failed)
V: Flat pelvis (sterilization)
I: Gen'l. contracted pelvis
III: No indication given; sterilization

### PRIVATE WARD
### Cesarean Sections
### Remarks—Indications

Gravida
III: Gen'l. contracted pelvis
II: Lateral placenta previa; transverse presentation
II: Prolonged labor; R. O. P.; fibroid uterus
I: Flat pelvis
I: Pre-eclampsia
II: Toxemia of pregnancy
III: Gen'l. contracted pelvis (sterilization)
I: L. O. P.; gen'l. contracted pelvis
I: Uterine inertia; R. O. P.
III: No indication given
I: Marginal placenta previa
VIII: Pre-eclampsia (sterilization)
II: Rigid cervix
I: Breech: flat pelvis
I: Gen'l. contracted pelvis; pre-eclampsia
II: Flat pelvis
I: R. O. P.; gen'l. contracted pelvis; toxemia of pregnancy
II: No indication

Eleven cases were done for contractions of the pelvis, real or relative, or approximately 70 per cent. One was for complete placenta previa. (See Table).

Of the private cesarean sections, 18 were primiparae, or approximately 50 per cent. Thirteen were for contractions, real or relative, or 34.2 per cent, thus it can be seen that contracted pelvis as an indication for cesarean section is the factor that we see twice as frequently in the public ward service.

### MORBIDITY

Whenever the question of morbidity is considered, one is confronted with various classifications and criteria. True, temperature readings alone should not be the basis for judging morbidity in obstetrical cases as various birth injuries (which may run a febrile course) are surely morbid complications. Likewise elevations of temperature may be due to other than true obstetrical causes. However, for this report, we have considered all cases as morbid which run a temperature of 100.4° for two consecutive days, other than the first day postpartal.

The morbid cases on the private service numbered 83, or an incidence of 16.8 per cent. On the public ward service, there were 75, or an incidence of 29 per cent. On first glance, the incidence of morbidity on the public service would seem to be unduly high, but here one must stop to consider that as the result of the hospitalization of the abnormal cases from three sources the operative incidence and interference is much higher in this series than in the private series. The incidence of operative deliveries on the private service is 44 per cent, whereas on the public ward it is 64 per cent. (In this report the so-called prophylactic low forceps and episiotomy are considered as operative cases.) This latter figure is again explained by the fact that the service receives the abnormal cases from the three aforementioned sources. Furthermore, we believe that the increase in the morbidity on the public ward service can be explained by the fact that the stratum from which the patients are derived is lower, and also that it is a teaching service for internes.

### TOXEMIAS

In the classification of the toxemias, we have grouped our cases into five general headings, viz., toxemias of pregnancy, pre-eclampsia, eclampsia, nephritis and hyperemesis gravidarum.

The term "toxemia of pregnancy" as used here is synonymous with the term "low reserve kidney" as used by some authors. Any case showing a blood pressure up to 140 systolic or 90 diastolic, without any signs or symptoms of pre-eclampsia, is included in the aforementioned group. Blood pressure readings over this are classified as pre-eclampsia or nephritis. Pre-eclampsia is diagnosed from such symptoms as dizziness, headache, nausea and vomiting or epigastric pains; a text book laboratory finding is an increased uric acid in the blood. Such signs as edema or decreased urinary output are also pertinent.

The diagnosis of nephritis is made upon the history, the rise in blood pressure early in pregnancy, and the urinalysis and blood chemistry. It is true that errors in classification will arise particularly with the private cases because:

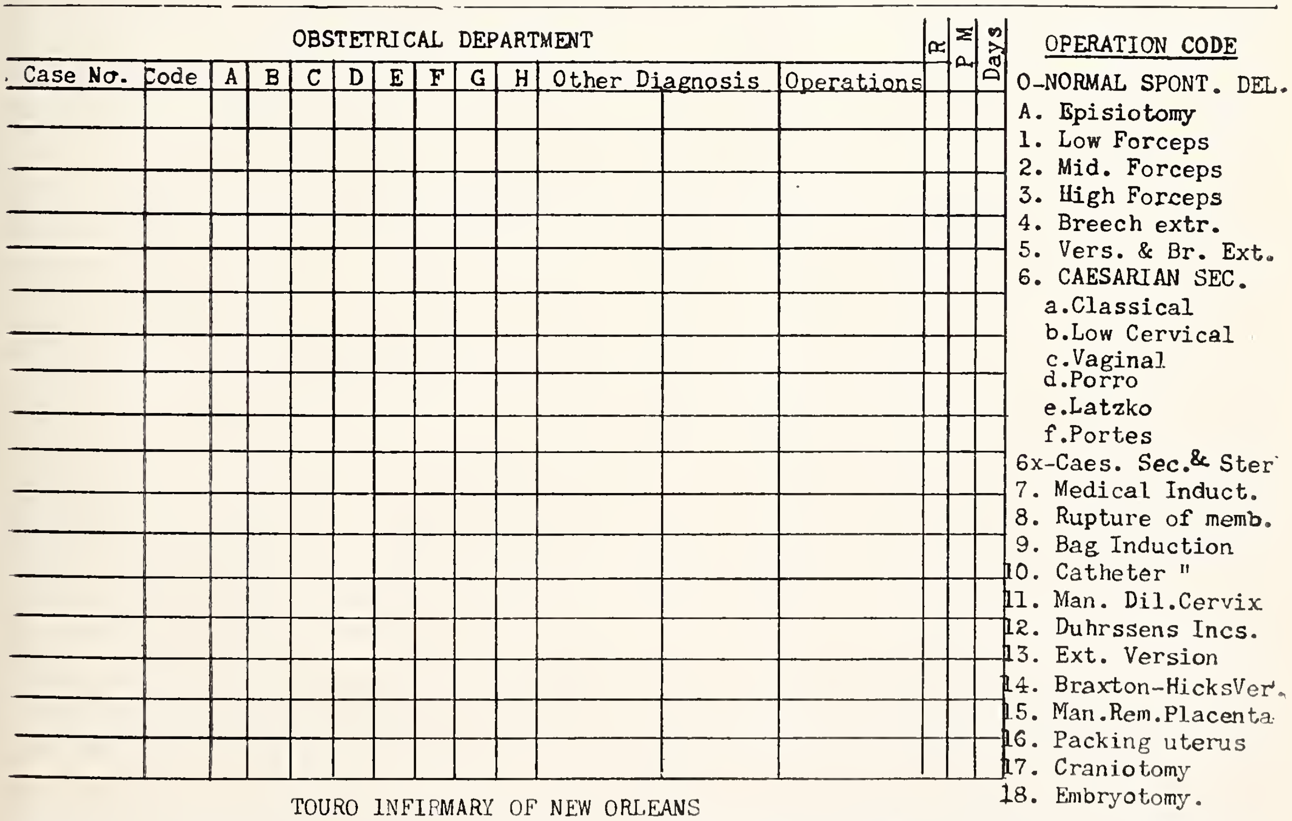
1. The physician does not, in most cases, supply a pregnancy record.
2. That in the milder cases of prenatal hypertension, laboratory work and special examinations are not done, due to the cost to the patient.

Nevertheless we do not believe that we have omitted any abnormal case in this group.

Out of a total of 493 private cases, 74 (15 per cent) were "toxemias of pregnancy"; 62 (12.5 per cent) were "pre-eclamptics", and 2 (0.4 per cent) were "nephritics". One case of eclampsia (0.2 per cent) were recorded.

This group of prenatal hypertensives included all Touro public and Child Welfare cases, a total of 847 cases. Of this group, 125 (14.7 per cent) were "toxemias of pregnancy", 96 (11 per cent) were "pre-eclamptics" and 15 (1.7 per cent) were "nephritics."

From this we see that the incidence of "toxemias" and "pre-eclampsia" is about the same in the private cases as it is in the public cases; the higher incidence of nephritis as seen in the public group is due most probably to the greater percentage of multiparae, (58 per cent) as compared to the private cases (47 per cent), and also because more laboratory tests and special work can be done on the public cases. In the latter group no eclampsia was seen. This is due in all probability to two things; first, we have at Touro, one clinic day a week set aside for only toxic cases. Through this we are able to follow our toxic patient more closely and prevent any extreme degree of toxemia from



OBSTETRICAL DEPARTMENT

| Case No. | Code | A | B | C | D | E | F | G | H | Other Diagnosis | | Operations | R | P M | Days |
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OPERATION CODE

O-NORMAL SPONT. DEL.
A. Episiotomy
1. Low Forceps
2. Mid. Forceps
3. High Forceps
4. Breech extr.
5. Vers. & Br. Ext.
6. CAESARIAN SEC.
  a.Classical
  b.Low Cervical
  c.Vaginal
  d.Porro
  e.Latzko
  f.Portes
6x-Caes. Sec.& Ster
7. Medical Induct.
8. Rupture of memb.
9. Bag Induction
10. Catheter "
11. Man. Dil.Cervix
12. Duhrssens Incs.
13. Ext. Version
14. Braxton-HicksVer.
15. Man.Rem.Placenta
16. Packing uterus
17. Craniotomy
18. Embryotomy.

TOURO INFIRMARY OF NEW ORLEANS

This card, as compiled by the National Conference of Nomenclature of Disease in 1935, is the type used on the Obstetrical Service of Touro Infirmary. The last column under 'Operation Code" is added by us for simplicity in carding the more common obstetrical operations.

developing. Second, our policy in handling prenatal hypertension, particularly pre-eclampsia, is treat it conservatively, hospitalize if necessary, and if no improvement follows, to induce labor provided the patient is beyond the period of viability. Of course we try to carry the patient to as near term as possible, but by delivering the patient whose toxemia grows steadily worse, or does not regress under treatment, we believe we see less accidents of pregnancy and more healthy mothers and babies.

The methods we employ in inducing labor are first medical, which in the majority of cases do not work, due to the premature state of the pregnancy. Our results with castor oil and rupture of the membranes have been very satisfactory and it is our method of choice when conditions exist which are favorable for this procedure.

### CONCLUSIONS

In this rather brief preliminary communication, we have only presented a statistical study of the incidence of cesarean section, morbidity, and prenatal hypertension. Time does not permit us going into a study of the various figures on forceps and version, or mal-positions. A careful study of the appended form will show just how simple it is to arrive at these and many other conclusions. Our purpose in bringing this to your attention was merely to show the simplicity of the method which is applicable, not alone to obstetrics, but to any other specialty as well. We are firmly convinced that it is only by keeping accurate records and tabulating them, that one is able to arrive at a definite opinion. The studying of these tabulations at stipulated intervals, by the staff of a particular service will at once show them their successes or shortcomings, and it is by heeding these that we are able to better our service to our patients.

### DISCUSSION

Dr. Conrad Collins (New Orleans): Dr. Levy requested that I present the incidence of cesarean section among negroes as found at Flint-Goodridge Hospital since I took charge of the obstetrical service, February 1, 1935 until January 1, 1936, during which time there were 190 cases admitted to the hospital through the clinic. There were only two cesarean sections performed, an incidence of 1.09 per cent. There were 31 cases referred from other services, as the Child Welfare, for various complications of pregnancy. Of that number, five cesarean sections were necessary. Forty-six cases out of 221 entered the true pelvis in transverse position. Version was necessary in ten cases. That may be a high percentage of cases delivered by version. But we are dealing with negro doctors who have no special training and I think this precedure is safer in their hands than a Scanzoni manoeuvre.

Dr. A. L. Levin (New Orleans): I would like to ask Dr. Levy if any attempt was made to study the number of cases of anemias of pregnancy before and after delivery. In the past several years a very interesting literature on that subject has developed. Only a few weeks ago a typical case of pernicious anemia following childbirth was admitted to the G. I. department of Touro Infirmary. We should pay particular attention to the anemias of pregnancy before and after delivery.

Dr. Hilliard Miller (New Orleans): The figures presented tonight by Drs. Levy and Meyer are most interesting from two viewpoints. First, the low incidence and mortality rate for cesarean section in a well organized obstetrical service, and secondly, the limit to which the indications for cesarean section may be extended by those who are not trained in this particular field of work.

The small per cent necessitating section, along with the low mortality rate represented in the statistics, speaks well for the service and for those men who, by their experience, are qualified to class themselves as obstetricians, particularly when the service is a clearing house for the abnormal cases for two or three public services.

I am amazed and embarrassed, however, to see listed among the indications for cesarean section such complications as failure to deliver by high forceps, unsuccessful dilation of the cervix with bags, and the inability to dilate cervix manually. Cesarean section done under these conditions necessarily involves such a risk of infection and sacrifice of life that its employment for such complications should never receive consideration. This group of dystociae very probably comprise a per cent of the list of pelvic disproportions which is readily recognized by the specialist on his first examination, while to the unwary and less well prepared accoucheur the serious nature of his problem becomes evident only after long hours of labor have been endured, the head has failed to engage, the cervix has not dilated, maternal exhaustion has developed and the rate and regularity of fetal heart tones indicate serious jeopardy to the life of the infant. Frequently under such circumstances, the attendant from apprehension, or at the insistence of the family, undertakes an operative delivery which is wrought with ugly consequences; less frequently he has the courage and intelligence to administer a narcotic, support his patient, and wait patiently until circumstances are such that a less risky delivery may be accomplished.

The accepted indications for cesaraen section at present are so definite that they might be put down in A. B. C. order. There is only a small group about which there might be any doubt at the onset of labor pains; this uncertainty is dispelled after a trial labor of from four to six hours is given, and it is found that the force of labor pains is not sufficient to overcome the existing disproportion between the maternal pelvis and the fetal head.

Cesarean section performed by the skilled surgeon, who is thoroughly acquainted with the conditions which make the operation safe, entails as low a mortality rate as any major surgical manoeuver. On the other hand, if the operation is undertaken by one who is not thoroughly versed in anatomical and surgical details, and entirely conscious of the safe limits of indications, the frightful maternal and fetal mortality which will follow will force the operation into the category of unsafe surgical procedures.

Dr. Walter E. Levy (In conclusion): In replying to Dr. Levin, we have no statistics on anemias in pregnancy on our service; we do have frequent consultations, however, with the medical department on these cases.

As regards Dr. Miller's observations, we were equally astounded when we went over the records. Dr. Meyer got these records out; I do not even know whose cases these were. I was only interested in the results, but whoever did those two particular cesarean sections is going to be bold enough to do more under similar circumstances. Our only reason for bringing these statistics up was the hope that it will encourage other departments in other hospitals to do the same and, as a result, benefit thereby.

## THE TESTIS HORMONE*

J. THORNWELL WITHERSPOON, M. D.†
Indianapolis

An address to a group of genito-urinary surgeons by a gynecologist on the subject of the male sex hormone must necessarily be prefaced by an apology. Since my immediate interests perhaps socially as well as scientifically, have been with the female sex, the little information I can offer you about the testis hormone is derived from an indirect source, the literature, and not from any personal experience with this principle, either experimentally or clinically. The analagous relationships, however, between the male and female sex hormones and their influence on their respective secondary sexual tissues suggest many interesting speculations; perhaps, a coordination of these relationships may offer a more fundamental insight into the physiology of these hormones.

With the ever increasing knowledge in endocrine physiology, the testis hormone is commanding more and more attention both scientifically and clinically. Unfortunately the very low yield of this principle from any of the present sources retards the progress of investigation of its activities, and until a more liberal supply is available we must be satisfied with the limited information as to its actions.

The testis, like the ovary, performs two functions, an external and internal secretion. The former is evidenced by the maturation and secretion of sperm, while the latter manifests itself by the production of the male sex hormone which, like the estrogenic principle of the female, apparently controls the growth and development of the secondary sexual organs. This hormonal secretion in the male is not present, however, in animals lower than the vertebrates, and in the majority of vertebrates it functions only periodically for a limited time. Man, however, exhibits no such restricted reproductive period and therefore his accessory sexual organs are maintained in an ever-ready functional condition by the continuous secretion of the testis hormone.

Various methods of detection and assay of this principle have been suggested: (1) the capon comb growth test—a bird unit is defined as that amount of material injected daily which causes an increase in the comb (length plus height) from 3 to 7 mm. by the sixth day of 5 (or more) out of 10 injected capons; (2) the spermatozoan motility test, in which guiena-pig sperm remains viable longer when in the presence of the hormone; (3) the electrical ejaculation test, with resulting coagulation of the semen (castrated guinea-pigs give either no ejaculation or only a watery discharge); (4) the rat prostate cytology test, in which cellular changes occur in the prostate three to four days after castration—1 R. U. equals 6 bird units;

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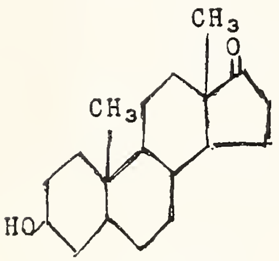
†The Lilly Research Laboratories.

*Read before the Clinical Society of Genito-Urinary Surgeons, Indianapolis, January 30-31, 1936.

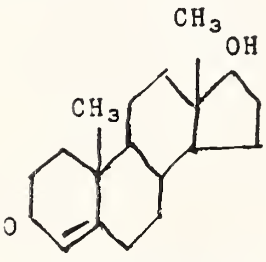
(5) the rat seminal vesicle cytology tests; (6) Cowper's gland test in the rat; and (7) the vas deferens test. The capon test has been by far the most frequently used.

The first successful extraction of the testis hormone was demonstrated by McGee of Dr. Koch's laboratory in Chicago. He obtained a potent product from the lipoid extractives of fresh bull testes. Since then crystalline products has been extracted from both testes and male urine, but as said before, the yield is very small. Butenandt estimated two million gallons of male urine yield, by his technic, 1 gram of the crystalline material, while Dr. Koch has utilized several tons of bull testis and hundreds of gallons of male urine to obtain only a few milligrams of this hormone. Ruzicka has succeeded in synthesizing both the testicular and urinary principles from cholesterol. The factor obtained from male urine is termed "androsterone"; that from the testis is called "testosterone". The latter is said to be seven to ten times as active as the former. The accepted structural formula for each is as follows:

### TESTIS HORMONE



Androsterone
$C_{19}H_{30}O_2$



Testosterone
$C_{19}H_{28}O_2$

An important question is whether or not these two principles are identical. Certain chemical and biological differences have been pointed out, but a definite answer is not yet available and the question still remains open. The molecular structure of the testis hormone presents a close chemical relationship to a whole series of other biologically important substances, such as cholesterol, bile acids, ergosterol, the estrogenic principle and the carcinogenic agents present in tar as well as those synthetically prepared. The phenanthrene ring is common to all. In fact, as proviously mentioned, Ruzicka has produced synthetically the testis hormone from cholesterol. The chemical formulas of some of these compounds are offered to demonstrate their close relationship.

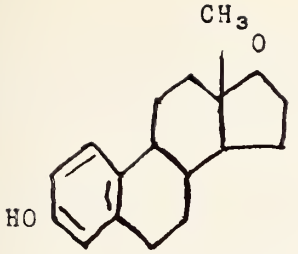
### OVARIAN HORMONES

The present sources of the testis hormone are the testes of the pig, ram, goat, bull, the urines of men and women and the bloods of the bull and goat.

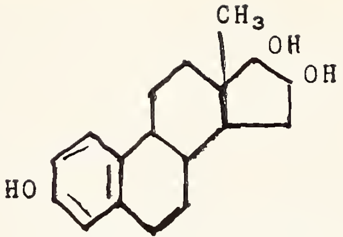
It is not known at the present time exactly when the testis begins to secrete its hormone, although in the urine of boys under 10 years of age it is generally absent. Stimulation, however, of these infantile testes by gonadotropic substances induces its secretion and the development of the accessory reproductive organs. The testis hormone has been found in the urine of men 91 years old. There is apparently no storage of this principle in man, and therefore it might be hypothesized that the hormonal secretion is continuous and not rhythmic. It is of interest that the undescended testicle, though failing to produce viable sperm, secretes the testis hormone in fairly normal amounts. This observation is backed by both clinical and experimental evidence. Ligation of the vas deferens does not increase hormonal secretion.

Since the fundamental work of Smith and Engle in this country and Aschheim and Zondek in Germany, demonstrating the controlling influence of the anterior hypophysis over both male and female gonads, animal experimentation has developed the following evidence to demonstrate the interrelationship of the anterior pituitary gland to the gonads. The castrate-urine follicle-stimulating principle or certain fractions of the anterior hypophysis stimulate only the seminiferous epithelium of the testes, which has atrophied after hypophysectomy. Spermatids and even spermatozoa are produced, but little or no response is noted in the interstitial tissue as revealed both by structural studies and by failure of the accessory reproductive organs to hypertrophy. This castrate-urinary or fractional anterior pituitary principle stimulates in both sexes predominately the germ cells (and tissues having the same origin, the granulosa cells of the ovarian follicle), and therefore might be designated as a gametogenic principle.

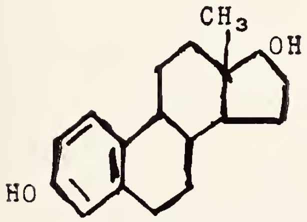
On the other hand a second anterior pituitary fraction or the gonadotropic principle present



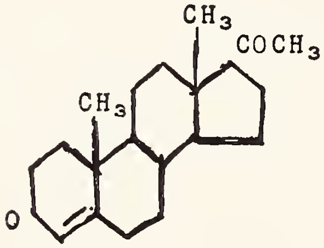
Keto-hydroxy-theelin
$C_{18}H_{22}O_2$
1 gm. = 800,000 R.U.



Tri-hydroxy-theelin
$C_{18}H_{24}O_3$
1 gm. = 15,000-40,000 R.U.

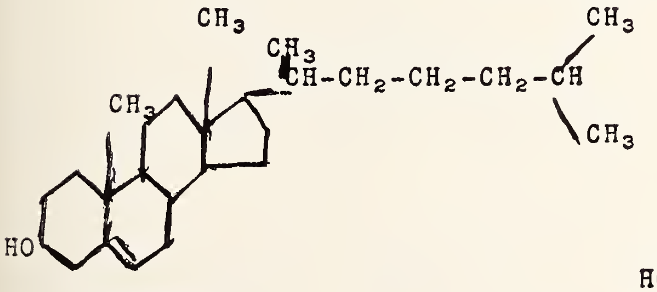


Di-hydro-theelin
$C_{18}H_{24}O_2$
1 gm. = 5,000,000 R.U.

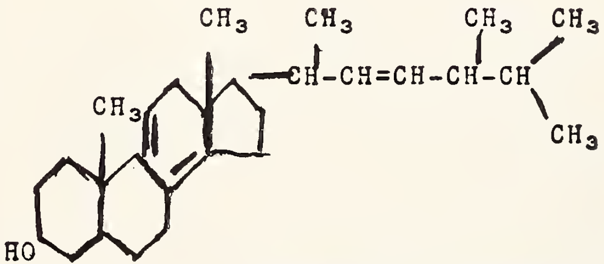


Progesterone
$C_{21}H_{30}O_2$

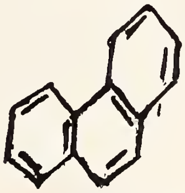
## RELATED COMPOUNDS



Cholesterol



Ergosterol (vitamin D)



Phenanthrene

in human pregnancy urine, when injected either into normal hypophysectomized male rats, produces an extensive interstitial tissue hypertrophy, and but slight seminiferous epithelium stimulation. This principle may be regarded as a "luteinizing" gonadotropic hormone since this is its main action in the female.

The secretion of the testis hormone is, therefore, dependent upon anterior pituitary activity. A reciprocal relationship exists, however, between the testis hormone secretion and anterior hypophyseal activity. Increased secretion and concentration of the former inhibits activity and secretion of the latter and vice versa. Indeed, pituitary activity in the male may be inhibited by administering the female estrogenic principle.

Two differences exist at our present stage of knowledge, in the gonadal mechanism between the sexes: (1) in the female the germ cells (granulosa) secrete the female sex hormone (ovarian follicular hormone), whereas in the male the testis hormone is produced by the interstitial tissue; (2) castrate or postmenopausal urine contains the anterior pituitary gametogenic principle; in the male no such factor is in evidence. Why these differences should exist cannot, at present, be answered. Possibly future investigations will solve these problems.

Even though androsterone and testosterone have been crystallized and have been prepared synthetically from cholesterol, there are no active preparations of the testis hormone or hormones on the American market. A few of the European firms are manufacturing this principle, although little information about its clinical action is available. Such products are "androl", Henning (1 c.c.=3 bird units); "androfort", Richter (1 c.c.=2 bird units) and "hombreol", Organon Labratories (1 c.c.=4 or 20 bird units).

Several difficulties confront the clinical application of the testis hormone. As stated, the yield of the hormone from either testes or male urine is very small; nor is much known of the normal man's needs of this principle; nor has it been estimated what constitutes a replacement dose for the castrated individual. Another problem is that there is no storage of this hormone in man and daily injections are therefore necessary. Finally, the therapeutic value of the hormone cannot as yet be definitely stated since the pertinent question, "What is the function of this hormone in man?" has not been satisfactorily answered.

Some recent investigations in Amsterdam suggest that certain types of human prostate hypertrophy may be helped with this hormonal principle. The assumption is that the estrogenic hormone, which is found in male urine, causes enlargement of the prostate, when the male hormone is secreted in diminished amounts. Treatment with the male factor is reported to have counteracted the estrogenic stimulation, to have arrested prostate hypertrophy and to have alleviated the symptoms.

Following along the generalization that the secretion of any organ does not stimulate the development of that organ is in accord with the testis hormone. This principle has no effect on the hypofunctioning testis; in fact, large and continuous injections of this hormone causes atrophy of the testis, destruction of germ cell production and hormanol secretion. This action of the male hormone on the testis is probably indirect, that is via the anterior hypophysis.

The theory advanced by McCullagh, that a special principle, "inhibin", exists in the testis and causes diminution in the size of an hypertrophied prostate through depression of pituitary activity, requires further clinical evidence and confirmation. Laqueur claims similar results with extracts containing the principle from male urine.

Testicular tumors of the teratoid type, although they possess undifferentiated and embryonal cells, secrete very high concentration of the urinary gonadotropic principle and apparently no excess of the testis hormone.

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## SISTER STANISLAUS HONORED

On the night of July 30, there was held in the Municipal Auditorium a most impressive and dignified ceremony, honoring Sister Stanislaus Malone, R.N., D. of C. of St. V. de P. At this convocation a large group of Sister Stanislaus' friends, admirers and recipients of her various charities gathered together to pay tribute to a great woman. In her more than fifty years of service at the Charity Hospital Sister Stanislaus has unquestionably been the biggest factor, not only in the satisfatory nursing and care of the patients but in the successful running of the institution. Her kindly disposition has caused her to spend a goodly part of her time and her activities in alleviating the discomforts of sickness and the sorrows of illness amongst a class of patients who, in many instances, have had their many trials and tribulations other than sickness helped by her. Not only is her goodness to the patients and their devoted treatment under her almost a legend of the hospital, but her friendship with the many doctors who have gone through the Charity Hospital and served there has been firm and enduring. To a man they hold for her respect, honor and affection. To the nurses Sister Stanislaus has been a guide, a leader and a saintly model.

It is too much to ask that Sister Stanislaus might have fifty years more in her important position but at least we can express our heartfelt desire that many, many more years of service lie ahead of her.

## POLIOMYELITIS

The epidemic of poliomyelitis which has been reasonably general throughout the country, particularly severe in the state of Alabama and several of the surrounding states, focuses attention on this very important disease. Fortunately Louisiana so far has escaped with only a sporadic case. The weekly reports of Dr. O'Hara, state epidemiologist, show at most one case a week. The last reports which were available showed only one case has been reported in a period of two weeks. These figures are encouraging and it looks as if Louisiana is going to escape any serious number of cases in contradistinction to Alabama which, in a period from June 13 to July 31 according to the U. S. Public Health Service, reported 209 cases and Tennessee with 60. The Alabama authorities seem to think that the disease is on the wane at the present time. If this is so there is a further likelihood Louisiana will be fortunate enough to have practically no cases of poliomyelitis.

The assumption that Louisiana will avoid the disease is optimistic, but probably true. However, it must not be presumed that such will be the case; poliomyelitis might hit Louisiana in epidemic proportions. If so, it is necessary to know what to do for these patients. In so far as the prevention of poliomyelitis goes attention is called to the communication from the Louisiana State Board of Health on the inside back page of the August number of the journal, in which Dr. O'Hara details a method of preventing poliomyelitis which has been advocated by the U. S. Public Health Service. While this method cannot be said dogmatically to prevent poliomyelitis at least it has produced results which would tend to confirm its presumed prophylactic powers.

After the disease has developed there is no specific. The question as to the value of convalescent serum is still debatable. If the convalescent serum is given it should be given, in theory at least, in the pre-paralytic stage. After paralysis has developed the virus is fixed in the cord. Possibly the anti-serum will then have no effect, although the proponents of convalescent serum, after development of paralysis, mention that the virus may be neutralized in dead cells and the virus moving from cell to cell may likewise be rendered innocuous.

In the discussion of the value of convalescent serum the observations of the well qualified Ann Arbor group* cannot be dismissed lightly. In a careful clinico-pathologic study of 125 cases of infantile paralysis these reporters found that in 80 of the pre-paralytic cases who received either convalescent serum, or convalescent or adult whole blood transfusions that 77 (96 per cent) did not subsequently have paralysis. In the small group of three patients that did develop this expression of poliomyelitis recovery was complete. The result of the use of serum in the paralyzed cases was not spectacular, however one-third of the cases showed definite improvement, whereas in the 17 children who received no immuno-therapy approximately 87 per cent had a severe residual paralysis with little or no recovery.

The administration of convalescent serum is both by intravenous and intraspinal route. If the former, 100 c.c. or more are given and at the same time 10-15 c.c. by the latter method. The intravenous dose is to be repeated if the temperature is still elevated and if improvement does not set in in twelve to twenty-four hours. Whole blood transfusions are given with the idea that the average adult has developed immunity and immune bodies. In this case 250-500 c.c. of blood should be given depending upon the size and age of the child.

## THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

"Yet I doubt not thro' the ages
One increasing purpose runs,
And the thoughts of men are widen'd
With the process of the suns".

It was many years ago that Alfred, Lord Tennyson, wrote these words and today we believe that in no single field of human endeavor has this progress been more pronounced than in the field of medicine and surgery. Surely, no other part of the world has seen the advance which has characterized medical progress on the North American Continent. The helpful cooperation and unflagging zeal of medical men everywhere, resulting in unrelating research, voluminous writing and frequent group meetings, have been responsible for this marked advance.

It was this perennial spirit of progress which recently brought together about one hundred thirty members of the medical profession in New Orleans for the purpose of establishing an annual graduate medical assembly. Plans are rapidly being completed for the first assembly to be conducted here during March, 1937. Some eighteen speakers of international note will conduct a series of lectures, clinics, and round-table discussions over a period of three and a half days, with daily sessions lasting from nine o'clock in the morning until ten in the evening.

The New Orleans Graduate Medical Assembly is distinctly a praiseworthy effort and will have great influence in directing the attention of the medical profession of the country to the splendid institutions and well-organized and well-equipped medical schools which are the pride of the local profession. Not only will organized medicine as a whole benefit from this meeting, but medical men will profit individually in information and in the infusion of enthusiasm which always comes from cooperative endeavor . For these reasons the Assembly should have the wholehearted and enthusiastic support of the medical profession of the South.

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*D. M. Cowie, J. P. Parsons and K. Lowenberg: Clinico-pathologic observations on infantile paralysis: report of 125 acute cases with special reference to the therapeutic use of convalescent and adult blood transfusions; the possible relation of blood group to the severity of the disease, Ann. Int. Med., 8:521, 1934.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

## OSCAR ALLEN TUMOR CLINIC
## CHARITY HOSPITAL
New Orleans

The scientific meeting of August, 1936, was called by Doctor J. T. Nix, Director. The essayist was Doctor James K. Howles who presented the following paper.

### CANCER OF THE SKIN IN THE NEGRO RACE

Cancer is no respector of race, creed or position. It is a scourge that takes its toll from all strata of society. There is a slight yearly increase in the demands of this devastator of humanity which today is responsible for over 100,0000 deaths yearly in this country alone. The riddle of the cancer problem has been rendered almost insolvable by its very nature, which is closely akin to that of growth itself about which human knowledge is so far relatively negligible.

The last half century, however, has seen great progress in this perplexing problem of medicine, although it is true the morphological study of cancer begun and pursued so eagerly in the past century has produced no cure, it has been the basis of subsequent discoveries.

One fact about which all physicians have become cognizant is the universal distribution of cancer and its prevalence among all races of mankind.

As late as 1898 Dr. Schachner, a well-known surgeon of Louisville, Kentucky, reported in an article, "Malignant Disease in the Colored Race, With a Report of Two Cases."[1] A discussion of the subject which illustrates the misconception that prevailed at that time is of interest. The conversation referred to is related by Dr. Schachner as follows:

"Two years ago a prominent surgeon of Louisville now residing in an eastern city, asked me among a number of others who practice surgery as to whether I had ever operated upon a colored patient for carcinoma; if I had ever seen cancer in a negro. At that time I had not. In the same conversation he said that another surgeon, perhaps the oldest in the city, stated that in twenty-five years he had not operated upon a single case of cancer in the negro. Aside from this particular instance I have frequently noticed that the impression seems to prevail rather generally that the negro is almost exempt from cancr."

This conversation was between physicians of a southern city where the colored population is high and was in the not distant past. This grave misconception existed even though Dr. Rudolph Matas a few years previously had made an outstanding contribution to the study of benign and malignant tumors of the American negro in a contribution to a treatise on Surgery by Frederick S. Dennis of New York City. Dr. Matas[2] in his analysis of the cancer problem at Charity Hospital of New Orleans from 1884 to 1893 said:

"It would appear from all this and other evidence that the opinion which has long existed that the negro was formerly less liable to malignant disease, and especially as to true cancer, is found on some ground, though it is equally certain that at present cancer affects the races in the same proportion."

The statistics of the hospital go even further than this, indicating a greater prevalence of cancer among the colored patients, and as they faithfully represent the experience furnished by the institution, they are worthy of serious consideration.

Perhaps much of the misunderstanding that has existed in the minds of some clinicians concerning cancer in the negro has been due to diagnostic inaccuracies which were enhanced by the fear of biopsying suspicious looking growths.

Ferdinand Helwig has stated that if every cancer could have the advantage of a biopsy the mortality of cancer would be greatly reduced.

Simpson[3] believes that only 70 per cent of cancers can be diagnosed clinically and not more than 80 per cent microscopically.

Biopsy should be used when it is impossible to make an accurate diagnosis by any other means. It should be done as an accurate means of classification with the purpose of determining the mode of treatment.

While the fear of biopsy is beoming less, however, when it is necessary, a histological study should be made since the recent work on the therapy of cancer is concerned principally with radiosensitivity, and this can be judged only by the classification of neoplasms formulated by histological study with subsequent therapeutic study and follow-up.

At the present time there is a great discrepancy between mortality and incidence of skin cancer. It is difficult to determine just what proportion of mankind skin cancer affects. Wells[4] quotes statistics from the Huntington Hospital in Boston showing that it is the most common form of cancer treated there. Pearl and Bacon[5] point out that it is a more frequent cause of death than is indicated by autopsy statistics because a greater proportion of victims of skin cancer die at home instead of in a hospital, than is the case in any other form of cancer.

While it has been believed by many that epithelioma of the skin, especially the squamous-celled type is uncommon in the negro race, the basal-celled type is still belived to be a nonentity in the negro skin.

The United States Public Health Service in 1928 issued an interesting bulletin on negro mortality in which it was stated that "comparing white and colored curves, colored rates are higher than white up to fifty years of age and from then on are considerably lower than the white rates." The statement applied to all forms of cancer, however, and not to cancer of the skin alone.

There is an abundance of evidence that cancer is not only common among the negro population of the United States at the present time, but that certain types of cancer are more common among the negroes than among the whites. A report by Dr. Louis I. Dublin in 1925, for the Metropolitan Life Insurance Company, showed that cancer of the buccal cavity was less frequent in the negro male than in the while male at ages above 25, while in negro females between ages 25 to 74 buccal cancer was more common than in white females.

Cancer of the skin prevailed at the rate of 2.1 among white males and 0.7 among colored males. Among white females the rate was 1.6, against 0.8 for colored females. The cancer death rate of the City of New Orleans for the years 1919 to 1922 was 125.3 per 100,000 for the white, against 121.8 for the colored. These figures represent deaths from all types of cancer. In this same period the death rate for cancer of the buccal cavity among the whites was 16.8, against 6.9 per cent for the negroes. The skin cancer deaths were: white 0.6 per cent, as against negroes 0.5 per cent.

Hoffman[6], in reporting the San Francisco cancer survey published in 1927, listed the death rates from cancer of the various parts for the two races in New Orleans for the period 1919-1923 as follows:

"Cancer of the lip among the whites prevailed at the rate of 0.3 against a rate of 0.4 for negroes, and cancer of the tongue 3.5 for the whites and 1.0 for the negroes. He commented on the correlation of symphilis and cancer of the tongue and the fact that hyphilis was more common in the negro race than in the whites. Cancer of the mouth was the cause of death in 0.6 per cent of the white mortalities and 0.4 per cent of the colored ones."

The purpose in emphasizing the incidence among the colored race is to impress upon the minds of the profession the fact that epithelioma of the skin is not uncommon in negroes.

In a recent survey of epithelioma of the skin collected from the records of Charity Hospital, New Orleans covering a period of twenty-seven years the following percentages occurred. These figures represent over 2200 cases which were admitted to the hospital for treatment of skin cancer and discharged with a diagnosis of epithelioma of the skin.

| | Per Cent |
|---|---|
| White males, 1,579 | 71 |
| White females, 550 | 20.4 |
| Colored males, 54 | 2.4 |
| Colored females, 37 | 1.6 |

The distribution of these 91 epithelioma found in the negro skin were as follows:

| | Colored Male | Colored Female |
|---|---|---|
| Cheeks | 11 | 7 |
| Lips | 14 | 7 |
| Nose | 4 | 2 |
| Ears | 1 | 2 |
| Neck | 1 | 1 |
| Forehead | 0 | 1 |
| Eyes | 0 | 3 |
| Hand | 1 | 2 |
| Chin | 2 | 1 |
| Legs | 5 | 4 |
| Back | 0 | 0 |
| Arms | 2 | 2 |
| Mouth | 7 | 2 |
| Fingers | 2 | 0 |
| Chest | 0 | 0 |
| Tongue | 0 | 0 |
| Feet | 0 | 3 |
| Shoulders | 0 | 0 |
| Toes | 1 | 0 |
| Genitalia | 0 | 0 |
| Miscellaneous | 3 | 0 |
| | 54 | 37 |

Much has been written concerning the role of pigment in preventing cutaneous cancer. All authorities seem to hold to the opinion that the colored races are less liable to skin cancers on this account and certainly this view seems to be supported by the available statistics. A distinct racial immunity is certainly a disproven therapy but that there exists a certain but partial immunity or a lessened susceptibility to cancer among some highly pigmented races may be true. The increase in frequency is probably due to the adoption of modern methods of living or to an intermingling of races.

Certainly the present skin cancer mortality of our American negro population tends more and more to approach the corresponding skin cancer death rate of the white population.

In a survey of 11,587 cancer deaths obtained from authentic records the percentage of deaths due to cutaneous cancer were as follows:

| | |
|---|---|
| White Males | 3.0 per cent |
| White Females | 2.0 " " |
| Colored Males | 0.2 " " |
| Colored Females | 1.1 " " |

Other reports give even a higher percentage among the negro race but time will not permit further review of statistics.

The purpose of this brief paper is to show that epithelioma of the skin is not uncommon in negroes. The percentage of deaths in the United States among negroes from carcinoma of the skin was 1.4 during the years 1923-1927. There is an abundance of evidence that cancer of the skin is becoming more common among the negro population of this country.

The crux of the whole cancer problem is early diagnosis, for while the precancerous lesions of the skin are relatively benign in their incipiency, early recognition would facilitate the treatment of epithelioma greatly.

As the negro patients become more numerous in reputable clinics and hospitals, the statistics concerning cancer in the negro has undergone marked revision.

When the number increases of these precancerous and even cancerous lesions which are recognized early and treated in their incipiency, the mortality rate of cutaneous epithelioma will no doubt decrease.

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## J. T. NIX CLINIC
## NEW ORLEANS

At a meeting held in August, Doctor L. S. Hill presented the following paper.

## POSTERIOR FOSSA TUMOR IN A CHILD
### CASE REPORT

On December 24, 1935 the patient, four years of age, was brought into the office and the following history was obtained. The child was an eight months baby, delivered normally. He sat up at eight months, crawled at thirteen months, walked at eighteen months and began talking at eighteen months. The speech, however, was never very distinct. None of the usual childhood diseases were contracted and he was never sick except for occasional vomiting spells which occurred about every two to six months. During these attacks, which came on in the morning, the patient vomited the food ingested on the previous evening. These attacks were easily controlled by the medicine prescribed by the local physician.

On December 4, 1935 a vomiting attack occurred which was not controlled by medicine and continued for almost a week. Previous to this the parents had noticed that for about a month the child had had trouble in walking. His feet seemed "to get mixed up" and they thought he was very clumsy. From December 4, 1935 he seemed to get progressively weaker. Seven or eight days were spent in a local hospital where various examinations, including a spinal fluid examination, were made. However, no diagnosis was arrived at. On December 24, 1935 the patient was brought to our Clinic in the father's arms, being unable to walk or even stand alone for any length of time. The appetite at all times was good, but even while eating he would vomit. This was a projectile type of vomiting and often the patient would vomit on an empty stomach, bringing up large amounts of mucus.

Examination at this time revealed a rather pale, depressed, somewhat apathetic, fairly well developed child, weighing 34½ pounds, temperature 98°, pulse 112, and respiration 26. The posterior cervical glands were palpable and the tonsils enlarged; the knee-jerks were positive and equal; the Babinski reflex was negative bilaterally; the gait, when assisted, was ataxic, the child being too weak to walk alone. Examination of the respiratory and vascular systems was negative. Vision could not be taken because of the inability of the patient to cooperate. The pupils were 3 mm. in diameter and reacted to light. Motility of the eye was unimpaired but a slight esophoria of the left eye was present. Examination of the fundus was unsatisfactory although a general congestion of the eye grounds was present. The optic discs were not seen well enough to report on. Examination of the eyes under a mydriatic was not done at this time.

Laboratory findings were as follows: Blood Wasserman, negative. Hemoglobin 50%. Total red cell count, 4,240,000. Color Index, 0.6. Total white cell count, 7,250. Small lymphocytes, 37%; large lymphocytes, 1%; neutrophiles, 61%; eosinophiles, 1%. Urinalysis, negative. Functional kidney test, 75% in two hours.

X-rays of the skull and the entire spine were reported negative for bone or joint pathology and the sella turcica appeared normal in outline.

At this time a diagnosis of Intracranial Neoplasm versus Hypertrophic Stenosis of the Pylorus was considered. The patient was given an antianemic diet and small doses of belladonna and allowed to return home for two weeks.

On January 8, 1936, when again brought to the office, he was very pale, the head appeared large and veins over the entire cranium were prominent. The pupils were large and reacted slightly to light. Tests for coordination could not be carried out. Examination of the eye grounds revealed a slight choking of the discs, the right showing more choking than the left. X-ray of the gastrointestinal tract showed a definitely splastic colon.

The patient was admitted to the hospital for observation. Neurological examination in the hospital was essentially negative except for a questionable impairment of hearing, unsteadiness on his feet, staggering to the right and left and tending to fall backward and a high percussion note over the head. A spinal tap gave a clear fluid under a pressure of 24 mm. of mercury, showing a cell count of 5, slightly increased globulin, 50 mg. of sugar per 100 c.c. and 486 mg. chlorides per 100 c.c. The tests for colloidal gold and the Wassermann reaction were negative.

A diagnosis of posterior fossa tumor, most probably a medulo-blastoma, was made and it was thought best to give the patient deep X-ray therapy at the time rather than to resort to surgery. Accordingly Roentgen therapy over three portals, giving 200 r units per treatment with a maximum of 1,600 r units per portal was ordered. Actually only eight treatments were given because of the reaction of the patient.

During the time the patient was in the hospital, from January 8, 1936 to February 8, 1936, there were periods during which he apparently was much stronger and brighter and ate well with freedom from vomiting. On January 26, 1936, the nurse began reporting occasional incontinence for urine and an occasional complaint of headache. The skin also became noticeably dry and rough. On February 8, 1936, after X-ray therapy was discontinued, he was discharged to return in one month.

February 19, 1936 he was readmitted. For the first eight days at home his parents thought he he improved. He ate well, seemed bright and was more active. After this, the mother noticed occasional movements of the left arm, the child often holding the arm up over the head for a while. Then the leg began to flex on the abdomen, and when straightened would gradually return to the flexed position. The local doctor, interpreting these movements as signs of meningeal irritation, advised the parents to bring the patient in to the hospital. On the day he was admitted the mother noticed a similar phenomena on the right side. At this time the discs were definitely choked with marked dilatation of the blood vessels. The pupils were dilated and there was a slight alternate squint. The spinal fluid was clear and under 27 mm. of mercury pressure with negative laboratory findings. The patient was quite lethargic. He could be aroused to eat and had a good appetite but took very little notice of his surroundings and lay quietly except for the movement of the left arm and leg and occasional movements of the right.

Although an encephalitis was considered at this time, surgery was deemed the most advisable procedure. Accordingly, on February 22, 1936, under local anesthesia, ventriculograms were made (Doctors Anderson and Nix) which showed marked dilatation of both ventricles with free communication and no deformity or dislocation, indicating an obstructive lesion at the brain stem. Immediate exploration of the posterior fossa was done. Palpation and inspection did not give any evidence of a tumor. Delicate adhesions were found around the Foramen Magnum, however, and when the finger was introduced a free flow of spinal fluid resulted. It was felt that these adhesions might possibly have caused a block. The presence of a tumor however was not excluded.

The patient went off the operating table in good condition and did well until about 4:30 p. m. when twitching of the body began. This continued and grew more severe despite the administration of sedative. At 11:20 p. m. a spinal tap was done and about 30 c.c. of bloody fluid removed. The convulsive movement became much less for a short while but the breathing remained labored. At 1:00 a. m., February 23, 1936, 50 c.c. of 25% glucose was given intravenously. At this time the temperature was 108° by rectum, pulse imperceptible and Cheyne-Stokes respiration present. He became progressively weaker and expired at 7:20 a. m. on February 23, 1936.

A partial autopsy was performed and the following report given:

The body is that of a normally developed white male child. The pupils are equal and in middilatation. There is nothing abnormal about the contour of the head though it is a bit larger than the average child of his age. There is a trephine opening through the occipital bone and a corresponding incision in the skin above this opening.

On opening the calvarium, the skull is found to show definite evidence of thinning in places. There is no special location however. The fontanels are closed. There is a slight increase in the amount of cerebrospinal fluid. There is no adhesion of the membrane to the dura except the normal attachments and some adhesions around a recent trephine opening over the occipital bone. The upper surface of the brain shows all vessels moderately injected. The lower surface of the brain shows a thinning out of the corpus albicans and the lower wall of the third ventricle. This wall is so thin from pressure that it has the appearance of a cyst. There is no other evidence of pathology from the outer surface. On opening the lateral ventricles, both are found to be markedly dilated and filled with a slightly turbid and faintly xanthochromic fluid. The foramen of Monroe is dilated and the third ventricle is markedly distended with the same character of fluid. Thre is a small cyst to the left side of the third ventricle below the choroid plexus which is a further thinning out of the wall of the third ventricle. The aqueduct of Sylvius is patent but not greatly dilated. The fourth ventricle is markedly dilated and distorted by a cerebellar tumor in the right lobe which presses upon the floor of this ventricle and occludes the foramen of Magendie through pressure upon this foramen. This growth is the size of a guinea egg, well encapsulated and somewhat succulent and translucent in structure. There is hemorrhage in one portion of this tumor which otherwise seems rather sparsely supplied with vessels. There is no macroscopic evidence of other pathology about the pons or medulla or the upper portion of the spinal cord nor are there any metastases found anywhere in the brain.

Diagnosis: Gliosarcoma of Cerebellum.

This case is interesting in that it demonstrates the difficulties encountered in diagnosis and localization of an intracranial neoplasm in a child where there issuch a scarcity of complaints. No headache, no dizziness, no visual disturbance were complained of. There was also inability to take accurate visual fields or to test for ataxia or disturbance of coordination, because the patient could not cooperate. Added to the above difficulties was the presence of marked gastro-intestinal symptoms accompanied by spastic colitis and a marked anemia.

# LOUISIANA STATE MEDICAL SOCIETY NEWS

## OFFICERS OF THE N. O. G. M. A.

The following officers and committeemen of the New Orleans Graduate Medical Assembly are rapidly completing plans to present a live medical educational program to the members of the medical profession of the South in March, 1937.

### GENERAL OFFICERS

Dr. Thomas B. Sellers, President
Dr. Lucien A. LeDoux, Vice-President
Dr. William H. Gillentine, Secretary
Dr. Francis LeJeune, Treasurer
Dr. Frederick L. Fenno, Director of Clinics

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Dr. M. T. Van Studdiford, Dermatology
Dr. J. Raymond Hume, East, Nose and Throat
Dr. A. L. Levin, Gastro-Intestinal
Dr. Hilliard E. Miller, Gynecology
Dr. O. W. Bethea, Medicine
Dr. Chas. S. Holbrook, Neurology
Dr. Edward L. King, Obstetrics
Dr. W. R. Buffington, Ophthalmology
Dr. H. Theodore Simon, Orthopedics
Dr. Edwin H. Lawson, Pathology
Dr. Roy E. de la Houssaye, Pediatrics
Dr. Wm. H. Perkins, Preventive Medicine
Dr. E. R. Bowie, Radiology
Dr. Shirley C. Lyons, Surgery
Dr. H. W. E. Walther, Urology

### BUDGET

Dr. John A. Lanford

### COMMERCIAL EXHIBITS

Dr. Philip H. Jones

### DAILY BULLETIN

Dr. Robert A. Strong

### ENTERTAINMENT

Dr. H. Vernon Sims

### EXTENSION

Dr. Chas. A. Bahn

### FINANCE

Dr. J. T. Nix

### GOLF

Dr. Allan Eustis

### HALLS AND SCREENS

Dr. H. L. Weinberger

### HOSPITALS

Dr. Arthur Vidrine

### HOTELS

Dr. H. B. Alsobrook

### INTERNATIONAL RELATIONS

Dr. W. A. Reed

### MOTION PICTURES AND LANTERNS

Dr. Wm. A. Wagner

### PUBLICITY

Dr. James E. Bailey

### RECEPTION

Dr. Frank Gomila

REGISTRATION

Dr. J. M. Davidson

ROUND TABLE LUNCHEONS

Dr. H. Theodore Simon

SCIENTIFIC EXHIBITS

Dr. Daniel N. Silverman

TELEPHONE AND TRANSPORTATION

Dr. H. R. Mahorner

### EXTENSION GRADUATE TEACHING IN LOUISIANA

On Monday evening, August 3, 1936, there was held in the domicile of the Society a meeting of considerable moment to the profession of the State. This was a joint conference between representatives of the Louisiana State Board of Health and the Louisiana State Medical Society to perfect plans for the teaching of obstetrics and perhaps later pediatrics in the rural districts of Louisiana.

The Committee on Medical Education and the Committee on Maternal Welfare discussed this matter with the Board of Health at length and the entire control of the program was finally vested in the Committee on Medical Education, Dr. Jos. Kopfler, Chairman and Dr. Chaille Jamison and Dr. R. B. Harrison, members, with Dr. E. L. King, Chairman of the Committee on Maternal Welfare and Dr. L. A. Masterson of the Board of Health as ex-officio members.

The State is to be divided into districts corresponding to centers of medical population and five evenings a week, two hours each, devoted to each district for didactic and clinical obstetrical instruction.

H. W. Kostmayer, M. D.,
President.

The Tri-Parish Medical Society held its regular monthly meeting in Tallulah, Louisiana, August 4, 1936, with the following members present:

Drs. P. A. Parrino, G. W. Gaines, E. D. Butler, J. P. Davis, D. F. Davis, E. O. Edgerton, W. H. Hamley, Provine, Joseph Whitaker, Wm. K. Evans.

Guests present: Drs. M. W. Hunter, H. S. Coon and Cook of Monroe, La. After enjoying a delightful spread at the Post Inn Cafe the members assembled in the club room. Dr. M. W. Hunter, Essayist, who is a specialist on disease of the heart and circulation, selected as his subject, "Pain of Angina Pectoris and Conditions Simulating Angina", and this paper was discussed by Dr. Coon and Dr. Cook of Monroe, Dr. Gaines of Tallulah, Dr. Hamley and Dr. Davis of Lake Providence, and Dr. D. F. Davis of Newellton, La.

There being no further business the meeting adjourned.

Joseph Whitaker, M. D., Pres.
Wm. K. Evans, M. D., Secty.

### BI-PARISH MEDICAL SOCIETY

A meeting of the Bi-Parish Medical Society was held in the staff room of the East Louisiana State Hospital August 5, 1936. The scientific program consisted of the following:

Report of Committee on Maternal Welfare, by Dr. Rhett G. McMahon, Baton Rouge.

Some Endocrine Problems, by Dr. H. W. Kostmayer, New Orleans.

The Acute Mastoid, by Dr. L. F. Lorio, Baton Rouge.

These subjects were handled in a very interesting manner and all were discussed by members present and a vote of thanks extended the doctors for their valuable papers. Drs. H. L. Lewis, H. W. Kostmayer, T. L. Mills and Clarence Lorio were elected honorary members of the Society.

The next meeting of the Society will be held the first Wednesday in October.

J. J. Ayo, M. D., Pres.
E. M. Toler, M. D., Sec.

### MISSISSIPPI VALLEY MEDICAL SOCIETY

The second annual meeting of the Mississippi Valley Medical Society will be held at Burlington, Iowa, September 30-October 2. The entire meeting including the technical and scientific exhibits, will be held in Hotel Burlington. There will be morning, afternoon and evening sessions and the complete program has been especially arranged to appeal to the general practitioner.

Among the eminent clinicians who will address the meeting are: Dr. D. C. Balfour, Rochester; Dr. A. J. Barsky, New York; Dr. George Crille, Cleveland; Dr. R. H. Jaffe, Chicago; Dr. R. A. Kinsella, St. Louis and Dr. Bela Schick, New York.

There will be over sixty lectures and demonstrations for the full three-day session. All ethical physicians are cordially invited to attend. A detailed program may be obtained from Harold Swanberg, M. D., Secretary-Treasurer, 211-224 W. C. U. Building, Quincy, Illinois.

Passed Assistant Surgeon F. S. Fellows was relieved from duty, New Orleans, on or about August 16, and directed to proceed to the Tennessee Department of Public Health, Nashville, Tennessee, for the purpose of assisting the State Health authorities on public health administration activities.

Passed Assistant Surgeon R. E. Butler was relieved from duty, U. S. Marine Hospital, San Francisco, upon arrival of Passed Assistant Surgeon H. D. Lyman and directed to proceed to New Orleans and report to Medical Officer in Charge of U. S. Quarantine Station, for duty.

Assistant Surgeon T. H. Tomlinson was relieved from duty, U. S. Quarantine Station, New Orleans upon arrival of Passed Assistant Surgeon R. E.

Butler and directed to proceed to Washington, D. C., for duty at the National Institute of Health.

Assistant Surgeon David J. Zaugg was relieved from duty, U. S. Marine Hospital, New Orleans, August 5, 1936 and directed to proceed to U. S. Quarantine Station, New Orleans, for duty.

Dr. Hilliard E. Miller has been appointed to the post of Professor of Gynecology in the School of Medicine of Tulane University and succeeds his brother, the late Dr. C. Jeff Miller, who held this position for many years. Dr. Miller is a graduate of Tulane University, the class of 1916. He was recently made Chief of the Department of Gynecology of Touro Infirmary, Senior Consultant in the Department of Gynecology of Flint-Goodridge Hospital, and Visiting Gynecologist at Charity Hospital.

Dr. Sidney K. Simon, chief of the Gastro-Intestinal department at Touro infirmary, died early August 5, 1936, at Touro after an extended illness.

Widely known for his research in amoebic dysentery and flagellate parasitism, Dr. Simon was one of the first in the South to write on that subject. He was 58 years old.

A native of New Orleans he was graduated from Tulane university school of medicine in 1901 and studied in Germany. He began the practice of medicine in New Orleans in 1903 and specialized in gastro-intestinal diseases. He was the son of the late Mr. and Mrs. Charles Simon and a nephew of the late Joseph Kohn.

For the past several years Dr. Simon has been a professor of gastro-enterology at Tulane university and also of clinical medicine. He became head of the Touro infirmary gastrointestinal department in 1934.

Dr. Simon was a member of the American Gastro-Enterologic society and an officer in the American Medical association. He organized the New Orleans Gastro-Enterologic society and wrote extensively on various diseases.

He was also a past president of the Tropical Medical society and a member of the Louisiana State Medical society and the Orleans Parish Medical society.

Dr. Curtis Albert Bailey of Athens, La., died July 15, 1936, at his home in Athens.

He was born at Athens, Louisiana, March 21, 1869, son of Thomas Bailey and Salina Atkins and in 1895 married Addie Harris, daughter of Mr. and Mrs. J. F. Harris of Athens. Dr. Bailey graduated from the University of Kentucky in 1890 and began practicing medicine in Athens soon thereafter. He continued his practice here until his sudden death from acute coronary thrombosis on July 15, 1936. Dr. Bailey was Vice-President of the Parish Board of Health, and was also a member of the Parish and State Medical Societies.

Dr. M. Earle Brown, chief of the department of ophthalmology of the Eye, Ear, Nose and Throat hospital, and head of the ophthalmology department at the Tulane Graduate School of Medicine, died suddenly August 19, 1936. He was 50 years of age.

A graduate of Tulane in 1911, Dr. Brown did general practice in Gretna for several years, and served as coroner of Jefferson parish. He was the founder of the Louisiana Coroners' association. He then went into the office of Dr. J. Raymond Hume, gradually taking over his eye practice.

In 1917 Dr. Brown volunteered for war service, although he was then past the age limit. He was accepted in a medical office in the Navy, and served with distinction during the war and for several years after, receiving a number of citations while in France.

He served as medical officer at the Naval hospital at Algiers and was medical officer aboard the flagship Dolphin during the war. (In 1918 he transferred to the Marine corps.)

Upon his discharge from active duty Dr. Brown was taken in as assistant by the late Dr. Henry Dixon Bruns, then head of the opthalmological department of the Eye, Ear, Nose and Throat hospital, and upon Dr. Bruns' death was made head of the department, which positio nhe held for 10 years.

Dr. Brown has written numbers of articles for medical journals, the most recent one being on "The Location of Foreign Bodies in the Eye," an improved method which he developed and practiced with great success. He did extensive charity work.

Dr. Truss M. Brister, 54 years old, died August 22, following a major operation which he underwent August 7.

The deceased, the son of the late James Brister and Arminda Hodges Brister, was born in Bogue Chitto and his early schooling was received in that community. He obtained his premedical work at Sewanee, Tenn., and later graduated from the University of Tennessee. Later he took a special course in medicine at Tulane and postgraduate work at Rochester, N. Y.

He came to Bogalusa in 1915. During the World war he went overseas and served as a lieutenant in medical corps, first with a French and later with an American unit. He returned in 1919 and joined the staff of the ESM hospital.

## THE AMERICAN BOARD OF INTERNAL MEDICINE, INC.

The American Board of Internal Medicine, incorporated February 28, 1936, completed its organization on June 15, 1936. The officers chosen were

Walter L. Bierring, M. D., Des Moines, Chairman; Jonathan C. Meakins, M. D., Montreal, Vice-Chairman; and O. H. Perry Pepper, M. D., Philadelphia, Secretary-Treasurer. These officers with the following six members constitute the present membership of the board; David P. Barr, M. D., St. Louis, Reginald Fitz, M. D., Boston; Ernest E. Irons, M. D., Chicago; William S. Middleton, M. D., Madison; John H. Musser, M. D., New Orleans, and G. Gill Richards, M. D., Salt Lake City.

The organization of the Board is the result of effective effort on the part of the American College of Physicians in conjunction with the Section on Practice of Medicine of the American Medical Association and these two organizations are represented in the membership of the Board on a five to four ratio respectively.

The American Board of Internal Medicine had previously received the official approval of the two bodies fostering its organization, as well as that of the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

The purpose of the Board will be the certification of specialists in the field of internal medicine, and the establishment of qualifications with the required examination procedure for such certification.

While the Board is at present chiefly concerned with the qualification and procedure for certification in the general field of internal medicine, it is intended to inaugurate immediately after July 1, 1937, similar qualification and procedure for additional certification in certain of the more restricted and specialized branches of internal medicine, as gastroenterology, cardiology, metabolic diseases, tuberculosis, allergic diseases, et cetera. Such special certification will be considered only for candidates who have passed at least the written examination required for certification in general internal medicine. The operation of such a plan will require the active participation and cooperation of recognized representatives from each of such special fields of medicine.

Each applicant for admission to the examination in internal medicine will be required to meet the following standards:

General Qualifications

1. Satisfactory moral and ethical standing in the profession.
2. Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided, membership in other societies will not be required.

Professional Standing

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association.
2. Completion of an internship of not less than one year in a hospital approved by the same council.
3. In the case of an applicant whose training has been received outside of the United States and Canada, his credentials must be satisfactory to the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

Special Training

1. Five years must elapse after completion of a year's internship in a hospital approved for interne training before the candidate is elegible for examination.
2. Three years of this period must be devoted to special training in internal medicine. This requirement should include a period of at least several months of graduate work under proper supervision in anatomy, physiology, biochemistry, pathology, bacteriology, or pharmacology, particularly as related to the practice of internal medicine.

   This work may be carried on in any domestic or foreign medical school or laboratory recognized by the Council on Medical Education and Hospitals of the American Medical Association as offering appropriate facilities for this type of postgraduate experience; or it may include a period of at least several months of graduate work under proper supervision in internal medicine or in its restricted and specialized branches in any domestic or foreign hospital, clinic, or dispensary, recognized by the above Council as offering appropriate facilities for this type of postgraduate experience.
3. A period of not less than two years of special practice in the field of internal medicine or in its more restricted and specialized branches. The American Board of Internal Medicine does not propose to establish fixed rules for the preliminary training of candidates for certification in this field. Broad general principles for training, however, may be outlined, although such suggestions as are made must, of necessity, be subject to constant changes reflecting the dynamic nature of the specialty. A sound knowledge of physiology, biochemistry, pharmacology, anatomy, bacteriology, and pathology, in so far as they apply to disease is regarded as essential for continued progress of the individual who practices internal medicine. The more factual knowledge of medicine and its basic sciences is not sufficient. The candidate must have had training in their use in furthering his understand-

ing of clinical medicine. This implies practical experience under the guidance of older men who bring to their clinical problems ripe knowledge and critical judgment. Preparation to meet this requirement adequately may be even more difficult to obtain than the so-called scientific training. It may, however, be acquired in the following ways:

(a) By work in a well-organized hospital outdoor clinic conducted by competent physicians.
(b) By a prolonged period of resident hospital appointments likewise directed by skilled physicians.
(c) By a period of training in intimate association with a well-trained and critical physician who has taken the trouble to teach and guide his assistant rather than to require him only to carry out the minor drudgery of a busy practice.

4. The Board does not consider it to the best interests of internal medicine in this country that rigid rules as to where or how the training outlined above above is to be obtained. Medical teaching and knowledge are international. The opportunities of all prospective candidates are not the same. Some may have the opportunity of widening their knowledge by a period of study abroad. Others, at the other extreme, may be restricted to a comparatively narrow geographic area and their detailed training must be obtained in short periods scattered over a long time. Although it is laid down that at least five years must elapse between the termination of the first interne year and the time when the candidate is eligible to take the examination, a longer period is advisable. The Board wishes to emphasize that the time and training are but means to the end of acquiring a broadness and depth of knowledge of internal medicine which the candidate must demonstrate to the Board in order to justify it in certifying that he is competent to practice internal medicine as a specialty. The responsibility of acquiring the knowledge as best he may rests with the candidate, while the responsibility of maintaining the standard of knowledge required for certification devolves on the Board.

Method of Examination

The examination required of candidates for certification as specialtists in Internal Medicine will comprise, Part I (written) and Part II (practical or clinical).

Part I The written examination is to be held simultaneously in different sections of the United States and Canaada and will include:

(a) Questions in applied physiology, physiological chemistry, pathology, pharmacology, and the cultural aspects of medicine.
(b) Questions in general internal medicine.

The first written examination will be held in December 1936, and candidates successful in this written test will be eligible for the first practical or clinical examination which will be conducted by members of the Board near the time for the annual session of the American College of Physicians at St. Louis in April 1937. The second practical examination will be held at Philadelphia near the time of the annual session of the American Medical Association in Atlantic City in June 1937.

Application blanks and further information can be obtained by addressing the office of the chairman, Walter L. Bierring, M. D., 406 Sixth Avenue, Des Moines, Iowa, U. S. A.

## RESOLUTION ON INSURANCE MEDICAL DIRECTORIES

Adopted by the Arkansas Medical Society April 29th, 1936.

Presented to the House of Delegates of the American Medical Association May 11; approved by the Judicial Council May 14 and adopted by the House of Delegates of the American Medical Association May 14, 1936.

"WHEREAS, certain commercial interests are publishing medical directories, listing physicians by speciality and otherwise, as available for insurance and compensation work, and other professional services, and

WHEREAS, participation by listing in these lay publications merely serves for the profit of the promoters, and is furthermore technically indirect solicitation of patients,

THEREFORE BE IT RESOLVED, That the Arkansas Medical Society condemns these practices as unethical and forbids its members to continue listing their names in such directories, and

BE IT FURTHER RESOLVED, That the Arkansas Medical Society requests the House of Delegates of the American Medical Association to take similar action."

## AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next written examination and review of case histories of Group B applicants by the American Board of Obstetrics and Gynecology will be held in various cities in the United States and Canada on Saturday, November 7, 1936.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Bldg., Pittsburgh (6), Pennsylvania. Applications for this examination must be filed in the Secretary's office sixty days prior to the scheduled date of examination.

### HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census reports that for the week ending July 18, there were 142 deaths in the city, divided 84 white and 58 colored, giving a rate for the group as a whole of 15.4; for the white race 12.8 and for the negro 21.7. The infant mortality rate this week was 70. For the next week, ending July 25, the death rate had increased to 16.5 as a result of 152 deaths. These were apportioned 74 white and 78 colored, giving a rate of 11.3 for the former and 29.2 for the latter. The infant mortality rate for this week was 93; a rate of 49 for the white and 155 for the colored. For the week ending August 1, the number of deaths dropped to 139. These were divided almost evenly between the two races there being 72 white and 67 colored deaths. The rate for the whole group was 15.1; for the white 11.0 and for the colored 25.1. The infant mortality rate dropped to 70 this week. For the week ending August 8, there was a sharp rise in the number of deaths; 183 people expired this week. Of these 105 were white with a rate of 16.1 and 78 were negroes with a rate of 29.2. The death rate of the group as a whole was 19.9. There was a rise in the infant mortality rate this week, it being 116.

### INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the State of Louisiana, which contain the following summarized information: For the 30th week of the year, ending July 25, there were reported 77 ases of syphilis, 55 of gonorrhoea, 53 of pneumonia, 38 of pulmonary tuberculosis, 37 of typhoid fever, 27 of malaria, 20 of cancer and 19 of whooping cough. Of the unusual diseases, two cases of cerebrospinal meningitis were reported this week; one from Red River Parish and 1 from Sabine Parish, which was a delayed report. Two cases of tularaemia were reported from Caddo; 1 case of undulant fever from Caddo and 1 from Orleans. There was 1 case of poliomyelitis reported from East Baton Rouge. The report for the 31st week of the year, ending August 1, showed syphilis still prevailing, 96 cases being listed with the following diseases reported in double figures: 54 of pneumonia, 44 of malaria, 32 of pulmonary tuberculosis, 27 of whooping cough, 24 of typhoid fever, 21 of cancer, 19 of gonorrhoea, 14 of chancroid, 13 of influenza and 11 of diptheria or diptheritic croup. There were 3 cases of pāratyphoid reported; 1 from Caddo Parish and 2 from East Feliciana. Ascension and Terrebonne Parishes each reportel 1 case of Scarlet Fever and Ascension and Claiborne Parishes each reported 1 case of septic sore throat. There was 1 case of dysentery reported from Rapides Parish and 1 case of typhus fever from East Baton Rouge. For the week ending August 8, the 32nd week of the year, syphilis still headed the list, there being 93 cases reported this week. This was followed by 59 cases of pneumonia, 51 of malaria, 49 of gonorrhoea, 38 of typhoid fever, 37 of pulmonary tuberculosis, 29 of cancer and 17 of scarlet fever. Listed among the unusual diseases this week were the following: 1 case of paratyphoid from East Baton Rouge, 1 case of diptheria from each of the following Parishes: Calcasieu, East Baton Rouge, Iberia, Plaquemines and St. James. Bienville Parish reported 8 cases of scarlet fever, Orleans 6, Caddo 2 and Ascension 1. One case of poliomyelitis was reported from St. Mary Parish. For the week ending August 15, there was reported 57 cases each of pneumonia and malaria, 34 of pulmonary tuberculosis, 27 of typhoid fever, 24 of syphilis, 20 of influenza, 19 of gonorrhoea, 18 of cancer and 14 of diptheria. Caddo, Terrebonne and Webster Parishes each reported 1 case of scarlet fever and Ascension, Calcasieu and St. Mary each reported 1 case of undulant fever this week.

### WOMEN'S AUXILIARY
### LOUISIANA STATE MEDICAL SOCIETY

President—Mrs. James Byron Vaughan, Monroe.

President-Elect—Mrs. George D. Feldner, New Orleans.

First Vice-President, Mrs. F. G. Ellis, Shreveport.

Second Vice-President—Mrs. T. H. Watkins, Lake Charles.

Third Vice-President—Mrs. E. B. Middleton, Homer.

Fourth Vice-President—Mrs. R. R. Arceneaux, Welsh.

Recording Secretary—Mrs. C. Grenes Cole, New Orleans.

Corresponding Secretary—Mrs. Joseph P. Brown, Monroe.

Treasurer—Mrs. Courtland P. Gray, Monroe.

Parliamentarian—Mrs. R. T. Lucas, Shreveport.

With most folks away on vacation, the hot, sultry month of August is always a lax one for news, however, the warm weather does not seem to have wilted the ambition of the Orleans Parish Auxiliary. While auxiliary activities as a whole have been disbanded until the Fall, work of organizing committees and formulating plans for the coming year has been completed so that when October rolls around, the stage will be all set and they will be ready to take off without any loss of time. Following are the officers, executive board members, and committee chairmen for 1936-37:

President—Mrs. W. P. Gardiner.
President-Elect—Mrs. Jules Myron Davidson.
First Vice-President—Mrs. Alson Ochsner.
Second Vice-President—Mrs. D. N. Silverman.
Third Vice-President—Mrs. George D. Feldner.
Fourth Vice-President—Mrs. Clyde Brooks.
Recording Secretary—Mrs. Vernon Sims.
Corresponding Secretary—Mrs. John S. Dunn.
Publicity Secretary—Mrs. Edgar Burns.
Treasurer—Mrs. Aynaud Hebert.
Parliamentarian—Mrs. Frank Hava.
Historian—Mrs. A. Mogabgab.

### STANDING COMMITTEES

#### Social

Mrs. Ernest E. Allgeyer, Chairman.
Notification—Mrs. H. Ashton Thomas.
Hostesses—Mrs. Cassius L. Peacock.
Membership—Mrs. George Taquino.
Entertainment—Mrs. E. A. Socola.
Motor Corps.—Mrs. Edmond Souchon.
Courtesy—Mrs. Willard Wirth.
Telephone—Mrs. Clyde Brooks.

#### Educational

Mrs. W. W. Butterworth, Chairman.
Tuberculosis—Mrs. Francis E. LeJeune.
Social Hygiene—Mrs. Alton Ochsner.
Safety—Mrs. Hilliard E. Miller.
Red Cross—Mrs. Adolph Jacobs.
Health Examinations—Mrs. John Menville.

#### Philanthropic

Mrs. Frederick F. Fenno, Chairman.
Library—Mrs. S. M. Blackshear.
Samples—Mrs. H. Theodore Simon.
Old Clothes—Mrs. Russell E. Stone.

#### Editor, Bulletin News

Mrs. Jules Myron Davidson.

#### Contact Chairman

Mrs. Herman B. Gessner.

The first class in Red Cross First Aid has recently been completed by a number of the auxiliary members, and those who were not able to avail themselves of this privilege, can do so any time during the year, as this is going to be continuous throughout the year.

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Don't forget, dear auxiliary members, whenever you hear of anything that you think might be interesting auxiliary news, please do not hesitate to send it in to me. There is always room for more. My address is: 3814 Louisiana Avenue Parkway, New Orleans, La. Thank you!

MRS. GEORGE D. FELDNER, Chairman.
Press and Publicity.

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## BOOK REVIEWS

*Abnormal Arterial Tension*: By Edward J. Stieglitz, M. S., M. D., F. A. C. P. New York, National Medical Book Co. 1935. pp. 261.

This book is a valuable addition, by a competent author, to the already large number of works on this subject. The author takes up the mechanism of control of normal and abnormal arterial tension and the more common etiological factors and states frankly that it is frequently impossible to do more than determine some of the probable causative influences. He then considers symptoms in arterial disease under the headings of cardiac, neurologic and renal consequences. Therapy is adequately and rationally touched upon. The remainder of the book considers briefly hypotension, and finally hypertension in surgery and obstetrics. The book is well worth reading and although it does not claim to solve the problem of abnormal arterial tension, it at least provides the reader with a rational working hypothesis and much food for thought.

RANDOLPH LYONS, M. D.

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*Enfermedades de las Coronatias*: By Duran Arrom. Barcelona. Inst. de medicina practica. 1936. Illus. charts. pp. 228.

In this excellent monograph Dr. Duran covers very nicely all the clinical aspects of coronary disease. His chapters on electrocardiography and roentgenology are remarkably complete and the reader gets full reward in information by means of accurate charts and electrocardiograms which illustrate the author's cases. Of special interest to American readers is the chapter on therapeusis, as the European art of prescription writing is depicted in full colors.

The book is of value to students of this special subject and to the practicing cardiologist.

GUILLERMO M. CARRERA, M. D.

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*A Synopsis of Physiology*: By A. Rendle Short, B. Sc., M. D., F. R. C. S. and C. I. Ham, M. B. B. Ch., F. R. C S. (Ed.) Baltimore, William Wood and Co., 1935. pp. 312. illus. pl. Price $3.50.

Just what the title implies, the book gives a summary of modern physiology. Its usefulness is problematic. The beginner would have to use an ordinary text-book of physiology as well, and anyone else would find this work inadequate. The book is probably useful to candidates cramming for some of the advanced English examinations.

HENRY LAURENS, M. D.

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*Basal Metabolism in Health and Disease*: By Eugene F. DuBois, M. D. 3d Ed. Philadelphia, Lea and Febiger, 1936. pp. 490. illus. Price $5.00.

This excellent text maintains the high standards of previous editions and contains a wealth of information for those interested in the various disorders of metabolism. In keeping with the author's purpose of presenting his subject matter so as to bring metabolic topics from the domain of the experimental physiologist to that of the practitioner, theoretical considerations have been reduced to a minimum, while the clinical implications of the respective disorders are constantly stressed. Very little weight is assigned to the animal experiments leading to the formulation of certain concepts, while much weight is placed on their clinical interpretations.

The first half of the book, entitled "Metabolism in Health", contains chapters pertaining to the relevant laws of physics and of chemistry; other chapters explain the physiologic principles involved and afford a concise review of these basic factors especially important to those who do not ordinarily have access to the literature on such matters. Even while involved in these fundamentals, the author is constantly endeavoring to show their relationship to clinical phenomena.

The second section, "Metabolism in Disease", contains chapters describing the application of metabolic studies in the diagnosis of disease. The chapter of thyroid diseases is fairly brief but informative. Diseases of the other endocrine glands which may be studied by our prevalent methods are also briefly recorded. Miscellaneous diseases in which studies of metabolism are of value are represented by appropriate chapters.

This book is to be recommended to anyone having occasion to treat metabolic disorders. For the specialist, it is an excellent source book. The bibiliography is adequate. For the practitioner who wishes to find concise summaries of the recent literature on the various metabolic disorders, the clinical chapters are especially of value. The author's clarity of presentation of subject matter adds considerably to the interest of this work.

SYDNEY JACOBS, M. D.

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*Demonstrations of Physical Signs in Clinical Surgery*: By Hamilton Bailey, F. R. C. S. (Eng.) 5th ed. rev. Baltimore, William Wood & Co., 1935. pp. 287. illus. Price, $6.50.

The revised fifth edition of this book, like the previous editions, contains much clinical information. In tabloid form, the material is readily accessible. The book should be of especial interest to the young practitioner as it stresses the value of careful observation. The author has used illustrations throughout and because of this he has presented his subject clearly and with a minimum amount of description.

EMILE BLOCH, M. D.

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*The Biochemistry of the Eye*: By Arlington C. Krause, M. A., Ph. D., M. D., F. A. I. C. Baltimore, Johns Hopkins Press, 1934. pp. 264. Price $3.25.

"This volume summarizes what is known of the biochemistry of the eye." The scholarly work, presented in clear, concise style in eight splendidly organized chapters, deals with the chemistry of the external secretions, conjunctiva, selera, cornea, uveal tract, retina, aqueous humor, vitreous humor and the lens. Each chapter contains tabulated data on the ultimate analysis, organic and inorganic constituents, of the tissue considered, and valuable information pertaining to physiological and pathological processes. The book should serve as a valuable source of reference material. While worth reading for a concept of the progress in this highly specialized field, the general practitioner will find little use for the book which is primarily designed for ophthalmologsts and research workers. Besides an author and subject index, there is an extensive bibliography including approximately 1000 articles.

SAMUEL B. NADLER, M. D.

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*Synopsis of Clinical Laboratory Methods*: By W. E. Bray, M. D., B. A., St. Louis, Mo. C. V. Mosby & Co. 1936. pp. 303. Price ______.

This concise, practical and comprehensive volume deals in orderly fashion and without unnecessary words, with the standard as well as the less used procedures of laboratory diagnosis. As the author rightly states in the preface, the object of the book is "to bring together in a small volume for ready reference the more recent information and the most frequently used methods of laboratory diagnosis".

Beginning with a brief outline of important tests to be performed in assisting the physician in the treatment of a group of selected conditions, Dr. Bray presents urinalysis, hematology, bacteriology, serology, etc. concisely and thoroughly.

This excellent little book is recommended to all physicians desiring a quick, simple and up-to-date source of information in Clinical Laboratory methods.

ALBERTO PRIETO, M. D.

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*American Chamber of Horrors*: By Ruth dE. Forest Lamb. New York, Farrar & Rinehart, 1936. pp. 418. Price $2.50.

As one reads this amazing expose of the terrible and revolting practises perpetrated upon the American public by the avaricious and unscrupulous food and drug manufacturers and by the dangerous practises of many of the farmers, his amazement, horror and disgust grows apace. The cupidity of the conniving and conscienceless trades, the smug stupidity of an indolent public and the zealous assiduity of the small and self-sacrificing group of members of the Food and Drug Administration arouse intense indignation on the one hand and great admiration on the other. The present law of the Food and Drug Administration is wholly inadequate and ineffective. Since June 12, 1933 there has been before congress a proposed new law. Known as the Copeland or the Tugwell Bill, it was in its pristine glory virile and efficacious but thanks to the ravages of time and lobbies and amendments is was an asthenic, impotent, emasculated bill at the time of its demise on June 20, 1936, shortly before the adjournment of the 74th. session of Congress. It was meant to replace the prsent law which was enacted in 1906. On March 22, 1935 President Roosevelt sent a special message to congress urging the passage of this bill so vital to the health and safety of the people of the United States. I have indicated how his request was heeded. This book was unquestionably written to reveal to all sane and sensible peopl and to urge upon them the necessity of a law to check the outrageous and pernicious practises of purveyors of foods and cosmetics and to permit of the prompt punishment of such offenders. Everyone, and especially physicians as the guardian of the health and well being of the community, should read how dangerous cosmetics and drugs are sold to an unsuspecting and gullible public frequently resulting in disaster, disfigurement and death of the consumer. One should become conversant with the use of poison sprays upon fruits and vegetables with their improper removal with the subsequent ill health, frequntly vague and unrecognized. One should learn to know the Joker in the law that permits villainy to escape because the law says the administration must prove intent on the part of the culprit to defraud. One should take due cognizance of an inadequate law that is able to prevent false labeling on medicine and the dishonest branding of the quality of foods and yets is powerless to check the mighty torrent of advertising that covers the country by papers, pamphlets, magazines and radio broadcasts. One should be familiar with the great vigilance of the Administration, greatly handicapped by insufficient numbers, to prevent the revolting and disgusting filth permitted to flourish in the dairy industries. One should study the methods of those who palm off adulterated and substandard foods to a public lulled into a false security by the modern Circes whose advertisements with song and story is a thing of golden beauty and financial joy for ever—at least to them. Possibly they too believe that "pigs is pigs". I feel so strongly upon this subject that I am perfectly willing to subscribe to the missionary zeal and the evident propaganda of the book. The author has performed a great service and her work is meritorious and honest and is based upon scientific and legal facts and court records. Temporarily, it has not achieved its purpose. But as times goes by the sleeping giant, public opinion, will be aroused from its lethargy and this book shall be one of the many lashes that shall goad it on to action and the accomplishment of a new law. The prophecy of the last chapter of the book shall be fulfilled. "There's going to be a law". Physicians should peruse this book and inform their public. They should preach, protest, and participate in a fight to the finish that the Food and Drug Administration shall be able propertly to protect the public consumer from the unscrupulous manufacturer. The business founded and maintained upon truth and honesty shall not fall a prey to the business dedicated to the accumulation of wealth by hook or crook.

I. L. Robbins, M. D.

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*Passive Vascular Exercises*: By Louis G. Herrmann, A. B., M. D. Philadelphia, J. B. Lippincott Company, 1936, pp. 288.

Following a general introduction the author gives an historical sketch of the concepts of the lesions and the problems of management in obliterative vascular diseases of the extremities. The developmnt of methods of effecting passive vascular exercise is traced by descriptions and illustrations of the types of apparatus which have been devised, including the improved Pavex machine designed by the writer.

Physiology of the peripheral distribution of blood, the effects of rhythmic alternation of environmental air pressure as it influences peripheral distribution of arterial blood, and the effects of changes in environmental temperature on tissue are presented in sufficient detail to furnish or refresh a working knowledge necessary for the intelligent employment of passive vascular exercise methods. The influence of the collateral arterial circulation in determining results obtained by passive vascular exercise and the factors which influence the extent and the development of this shunt circulation are discussed. The value of obtaining as much information as possible concerning the type, the duration, and the distribution of the arterial obliterative process is stressed, and the methods of making such determinations by clinical and special methods are adequately presented. Particular emphasis is laid on the importance of making properly controlled calorimetric and oscillometric determinations.

Methods of producing vasomotor relaxation for diagnostic, therapeutic, and prognostic purposes are discussed in the form of a critique of the agencies which have been recommended and employed for this purpose. The undesirable or unsatisfactory results frequently observed following certain commonly applied methods of management of patients with obliterative vascular disease are accounted for, and the author repatedly warns against the physiologically unsound practice of accelerating local tissue metabolism through increasing the environmental temperature of an extremity without simultaneously assuring adequate increase in circulation to the part.

Dr. Herrmann is conservative in his estimate of the benefit which will eventually accrue from the use of the Pavaex apparatus. Although he indicates its broad field of usefulness by citing illustrative cases of both acute and chronic ischemic conditions of the extremities, he is careful also to indicate the perfectly reasonable limitations of the Pavaex equipment. Whereas in some cases lasting benefit may result, in other instances even prolonged employment of the apparatus may afford only temporary palliative relief. When peripheral vascular disease has caused such a degree of tissue damage that debridement or amputation is necessary, the preoperative or postoperative use of the Pavaex apparatus may permit the safe and satisfactory performance of a more conservative surgical procedure than would otherwise be possible. Contraindications and precautions which must be observed when using the Pavaex apparatus are given as explicitly as is possible. The methods of increasing peripheral circulation by such means as the exercises of Buerger and Allen are described, and the importance of attention to "petty details" on the part of the physician and the patient is reiterated.

In the final chapter there is an outline of the routine for study and the care of patients with obliterative arterial diseases of the extremities, and work sheets, including charts and diagrams for recording results of the oscillometric and calorimetric studies, are reproduced. This carefully written and well illustrated book is of general interest and should be of particular value to anyone who is treating or who plans to treat patients with obliterative vascular lesions of the extremities.

Ambrose H. Storck, M. D.

*Diseases of the Respiratory Tract*: Eighth annual Graduate Fortnight of the New York Academy of Medicine. Philadelphia. W. B. Saunders Co. 1936. pp. 418. illus. Price $5.50.

This book represents the symposium of the Eighth Annual Graduate Fortnight of the New York Academy of Medicine. The large number of notable contributors is one of the many distinctive features of the volume. This happy choice of subjected selected and the complling manner in which they have been handled from the medical surgical and physiological aspects with especial emphasis placed on simplicity and clinical application and usefulness will be hailed with real delight. For here we have the most recent developments in medicine written authoritatively and yet with debatable and dubious matters entirely deleted. Colds, pneumonia, cancer, tuberculosis and bronchiectasis are but a few of the many important diseases discussed. This criticism is very general. In order to keep abreast of the times the general practitioner must find time to read this book. It is a splendid effort and merits careful consideration.

I. L. Robbins, M. D.

*Treatise on the Legal Aspects of Christian Science*: By I. H. Rubenstein. Chicago. Crandon Press. 1935. pp. 33.

This small volume is of particular interest to the physician in that it treats of the medico-legal aspects of cases of this nature, giving citation to cases on record.

I. L. Robbins, M. D.

*Common Contagious Diseases*: By Phillip Moen Stimson, A. Z., M. D., *2nd ed.* Philadelphia. Febiger 1936. pp. 437. Price $4.00.

In the preface to this book the author states that it is his conviction that here is a real need for a compact and handy book which presents in a reasonably clear and concise manner the salient features of the common contagious diseases, together with brief descriptions of the recent developments in the knowledge of these diseases.

This book does exactly this and it is highly recommended for just this object in mind. It will, serve well the medical student and practicing physician as a handy reliable reference book.

The sections on whooping cough and poliomyelits are very complete and most up-to-date. One fails, however, to see any reference to the recent work on the use of antitoxin in the treatment of meningococcus meningitis.

Don Julian Graubarth, M. D.

## PUBLICATIONS RECEIVED

Charles C. Thomas, Springfield: The Thyroid, by E. P. Sloan. Tissue Immunity, by R. L. Kahn, M. S., D. Sc.

P. Blakiston's Son & Co., Philadelphia: Toxicology, by F.P. Underhill, Ph. D., and T. Koppanyi, Ph. D. A Text Book of Histology, by J. Lewis Bremer, M. D. Recent Advances in Genito-Urinary Surgery, by H. Bailey, F. R. C. S. (Eng.) and N. M. Matheson, M. B., F. R. C. S., M. R. C; P;

Paul B. Hoeber, Inc., New York: Physician Pastor and Patient, by George W. Jacoby, M. D.

D. Appleton-Century Co., Inc., New York: Williams Obstetrics, by H. J. Stndis, M. D., F. A. C. S.

F. A. Davis Co., Philadelphia: A Diabetic Manual, by E. L. Bortz, A. B., M. D., F. A. C. P.

The C. V. Mosby Co., St. Louis: Introduction to Materia Medica and Pharmacology, by H. A. McGuigan and Edith P. Brodie. Microbiology and Pathology for Nurses, by Charles F. Carter, B. S., M. D.

W. B. Saunders Co., Philadelphia: A Text Book of Pathology, by W. G. MacCullum.

McGraw-Hill Book Co., New York: Arthritis and Rheumatic Disease, by Maurice F. Lautman, M. D.

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# ACUTE APPENDICITIS: A SYMPOSIUM

## ACUTE APPENDICITIS IN CHILDREN*

JOHN SIGNORELLI, M. D.†

NEW ORLEANS

Appendicitis as a general consideration deserves careful study not only because of its widespread distribution, but more particularly on account of the morbidity and mortality risks associated with it. Acute appendicitis in children is deserving of even more pains-taking study for not only is it the most common of all the abdominal diseases in children, but it is possessed of more far reaching devastating consequences. Its course is more rapid, its tendencies to perforation much greater, and its symptomatology as well as its physical signs, because of certain anatomical peculiarities, differ sufficiently from the adult cases often to make its accurate diagnosis apparently difficult. Yet, in children there is no other disorder or disease in which early and accurate diagnosis is so vitally essential to proper management and successful outcome of the case. Nor is there any other disorder in which errors of management at any stage, but more particularly in the early stage, are so apt to provoke serious and often fatal consequences.

Inasmuch as the most outstanding symptom of acute appendicitis is abdominal pain, a consideration of this disease must include all conditions met in children which are capable of producing and do produce acute abdominal pain. These conditions may be located within the abdomen or elsewhere in the organism. It is obvious, therefore, that appendicitis requires careful study of the case history, skillful physical examination and intelligent evaluation of the findings for a definite diagnosis. In arriving at the diagnosis the chief responsibility rests directly with the family physician and especially the pediatrician, for while surgeons feel competent to elicit and evaluate signs and symptoms in all surgical conditions in the adult, they prefer to rely upon the judgment of the pediatrician when it comes to children, and since the pediatrician generally sees the case before the surgeon is called in, it is but fair that he should accept and discharge this responsibility in such fashion as to leave no pitfalls for the surgeon.

In this presentation, which is a contribution to an educational campaign in an effort to promote longer life from the standpoint of reducing morbidity and mortality rates of appendicitis, all other conditions capable of provoking acute abdominal pain will be merely mentioned, with references indicated for the benefit of those who may wish to secure more detailed information of same. These are as follows:

Pneumonia [8, 13, 15]
Pleurisy [15]
Acute Throat Infections [5]
Tonsillitis [13]
Pharyngitis [5, 8]
Pericarditis [15]
Intussusception [15, 8]
Gastrointestinal Disorders [3]
Mesenteric Lymphadenopathy [5, 8, 13, 16, 17]
Tuberculous Peritonitis [16]

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*Read before the Orleans Parish Medical Society, May 11, 1936.

†From the Department of Pediatrics, Louisiana State University Medical Center and the Pediatric Service, Louisiana State Charity Hospital, New Orleans.

Pneumococcal and Streptococcal Peritonitis [13, 15]
Meckel's Diverticulum [15]
Pyloric Stenosis [16]
Pyelocystitis [15]
Pyelitis [13, 8]
Henoch's Purpura [15, 8, 16]
Acetonemic Vomiting [15]
Measles [8, 16, 5]
Typhoid [15]
Renal Disease [9]
Gall Bladder Disease [9]

### INCIDENCE

Mattestock (quoted in Pfaundler and Schlossmann)[9] in 1880, found 72 cases of acute appendicitis in children in a series which included 1030 adult cases. The number of admissions in the Zurich Children's Hospital from 1909 to 1918 was 334, while from 1919 to 1922, 1097 cases were operated. The ages represented by these cases are as follows:

| Years of Age | Percentage |
|---|---|
| 2 | 0.9 |
| 4 | 5.6 |
| 5 | 6.5 |
| 6 | 6.5 |
| 7 | 8.4 |
| 8 | 6.0 |
| 9 | 7.6 |
| 10 | 9.1 |
| 11 | 13.0 |
| 12 | 9.4 |
| 13 | 8.4 |
| 14 | 5.6 |
| Over 14 | 9.1 |

In a series of 2295 cases reported by Maes[10] seen at the Louisiana State Charity Hospital 426 were in children under twelve years of age. Peterson[1] has called attention to the fact that appendicitis in early life is on the increase and Tasche[2] states that appendicitis in children occurs slightly more often in males than in females and though seldom seen under three years occurred with increasing frequency from this age to the seventh year. McLanahan[3] reported an age average of 3.2 years in a group of children in whom acute appendicitis had ended fatally, while Stone[4] reported a series of 258 cases of acute appendicitis in children proved by operation, found that the age distribution curve reached a peak at twelve years and remained high for two years following. He states that a study of this and similar series indicates that the incidence of acute appendicitis in children increases gradually from infancy to adult life, rather than presenting a sharp increase at any given age period. My impressions and experience appear to coincide with those of Stone, but it must be admitted that studies of disease from a statistical standpoint depend upon a variety of factors, hence the divergent conclusions appearing in the literature. The sex incidence indicates that males are more frequently involved than females. In Pattison's[18] series 59.7 per cent were males and 40.3 per cent females. The seasonal incidence shows an increase of cases during the months of June, July and August, while the race incidence shows that white children, though more often afflicted, do not have as high a death rate as negroes.

### MORTALITY

McLanahan[3] in a study of 179 cases in children under thirteen years found a mortality of 3.91 per cent, the lowest for similar cases reported in the literature up to 1934. He also found that the children who died belonged to a group presenting spreading or generalized peritonitis, and significantly averaged only 3.2 years of age. Stone[4] divided 258 cases into three groups, namely:

Group 1. Acute appendicitis not ruptured;

Group 2. Acute appendicitis ruptured with localized peritonitis or definite abscess formation;

Group 3. Acute appendicitis with rupture and no localized peritonitis.

He compared these with a similar group of adult cases drawn from the same clinical source and found that while the mortality in Groups 1 and 2 were essentially the same in the two series (16 per cent), the mortality among the children of Group 3 was 34 per cent. In Kaiser's[7] series of 363 cases in children between 2 and 15 years of age the mortality was 0.75 per cent for acute uncomplicated cases; 6.5 per cent for cases of localized abscess, and 22.9 per cent for cases with diffuse peritonitis.

Maes[10] in his series, referred to above, found a mortality of 8.7 per cent.

Cross-sections of statistics on mortality of acute appendicitis show that the highest death rates are encountered during the third and fourth years and are met in cases in which peritonitis has developed. In a critical study by Pattison[18] of 38 patients six years of age and under, there were six deaths, or a death rate of 15.6 per cent, and he comments that "one of the obstacles encountered in these children is the apparent inability or difficulty in making early diagnosis". Nineteen cases or just one half, had had their symptoms 72 hours when admitted to the hospital; only 13 were uncomplicated, while 17 had abscess and eight a spreading peritonitis. Of the 38 cases only five gave a history of previous attacks.

From these figures it is apparent that acute appendicitis in children is a condition that must be considered not only frequent but on the increase and that its mortality can be definitely reduced almost to an inconsequent minimum by the mere establishment of early diagnosis and institution of proper management. This point is clearly emphasized by the statements of Hudson[11] who stated that in Massachusetts in a period from 1900 to 1930, 1795 children died of appendicitis, being distributed as follows: 25 cases in 1900, 107 in 1930, representing an increase of 428 per cent. During this same period the increase in the child population in this area was only 41 per cent.

### CAUSE AND PATHOLOGICAL ANATOMY

No definite statement can be made as to the direct cause of appendicitis. Several factors have been proved in different instances as being apparently the causative agent. One outstanding factor is trauma resulting from lodgement within the appendix of small masses of fecal matter and intestinal parasites, especially pin worms. Within recent years investigators have directed attention to the rather striking coincidence that abdominal pains often are associated with diseases of the tonsils and throat. Brennemann[5] has shown by reference to other workers and his own observation that cases of acute appendicitis may occur in greatly increased numbers during epidemics of grippal infections and cited cases which leave little doubt that appendicitis may and does "occur as a complication of, or a sequel to an infection of the throat". Our own experience in the city of New Orleans during the epidemic just passed bears out these observations, since an outstanding factor of this epidemic has been the more or less marked regularity with which children have been attacked simultaneously with abdominal and throat distress.

### PATHOLOGIC ANATOMY

Studies of this phase of appendicitis in children shed emphatic light upon the reasons for the sharp differences that exist in the clinical course, symptomatology, and diagnostic phases in the young. In children the appendix is situated higher than McBurney's point; and though no definite rules apply as to its actual position it may be found downward into the pelvis, directly on the cecum in the right iliac fossa, or it may point upwards as high as the liver. Truly it has been said that the location of the appendix in children may be anywhere between the lower border of the liver and the pelvis. Feer[6] states: "In the newborn the appendix lies at the lower end of the cecum and later approaches more and more to the inner side, that is, near the insertion of the ileum. It is freely movable, and generally hangs inward and downward and often the free extremity hangs in the pelvis". He further states "The appendix is relatively longer and wider in infancy than in later life and shows a funnel-shaped canal into the cecum." As regards the lymphatic follicles the same author states, "The lymphatic follicles of the mucous membrane are sparse in the infant but become more abundant in later life. Normally, membranes and bands may be present about the appendix which are difficult to differentiate from pathologic changes." According to Aschoff[12] the pathological process develops as follows: "The primary affection is an epithelial defect in the folds of the mucous membrance, usually in the distal portion. A small leukocytic infiltration is formed which may lead to a local ulceration. This shows a tendency to advance towards the serosa on which a fibrinous deposit is formed. If the process advances, necrosis of the whole wall may develop and frequently leads to perforation. According to the virulence of the infection, a peritonitis develops at the site of the inflamed or gangrenous appendix, which may remain circumscribed, or, in cases of gangrenous or perforative appendictis spreads over the peritoneum." It is well known that an outstanding characteristic of all tissues in young children is the tendency to respond very quickly to injuries of all types. This is particularly true of mucous membrances and lymphoid tissue and since the tissues of the appendix are of the same nature as the tissues of the tonsils, that is lymphoid, it should not be difficult to understand why pathology develops in the appendix more frequently than at any other site within the child's abdomen. These same factors, too, indicate the necessity of early accurate diagnosis so as to permit adequate intervention before destruction of tissue and perforation occurs.

### SYMPTOMS AND THEIR SIGNIFICANCE

Although there is no essential difference in the symptomatology of a clear cut case of acute appendicitis in children, from the adult it must be recognized that a large proportion of cases do not present the typical classical symptom-complex which is so unmistakable. Often in children the clinical picture is far from clear, and it is in these cases especially that much harm often results from injudicious use of purgatives, enemas, and administration of food. While all symptoms may or may not be severe and alarming at the outset, their subsequent behavior depends entirely upon the extent, severity and progress of the pathology, and must be evaluated as representing two types of cases, namely, mild and severe.

In mild cases the onset usually arises during health without premonitory signs, or may follow closely a dietary indiscretion, perhaps incident to a holiday. Occasionally there is a history of previous mild abdominal pain that was regarded lightly by the parent and passed off without serious consequences. The bowel action at first may be diarrheal but within twelve to twenty-four hours becomes constipated. The temperature in these mild cases may not be elevated at all, or only slightly; this is a very important point to remember whenever one deals with abdominal pain, since it must be recognized that mild appendicitis may be present without a temperature rise. The pulse is almost always accelerated in chidren.

In these mild cases the child does not appear distressed, vomiting is generally absent and abdominal pain, if elicited, is found diffused over the entire abdomen or at some point far removed from the right iliac area. In older children the site of the pain is often pointed out by the patient, and in the vast majority of cases it is located away from the appendix region, being almost anywhere over the abdomen, but more frequently about the umbilicus, at the left hypochondrium or at the left iliac area. The only positive finding on examination is a slight, but definite spasticity evidenced by resistance to the palpating hand over the right rectus muscle. This is present even in cases in which the pain is referred to some point of the abdomen other than the appendix area.

In this type of case rest and starvation usually leads to complete disappearance of all symptoms in one to three days. However, it is in mild cases that the greatest danger lies, as the parent is apt to undertake its treatment without calling her physician and convert the case into a serious or even a fatal one by the injudicious use of purgation, enemas, and feeding.

In severe cases, where the pathology has involved the entire appendix wall, the clinical picture is quite different and approaches the classic. The facial expression is anxious and pale; the child is visibly restless and sleep is disturbed; vomiting and abdominal pain are pronounced, even without actual peritonitis having yet occurred, and the abdomen may be slightly distended. The temperature rises sharply with a range between 102° and 103° F. and the pulse rate rises to between 110 and 150 according to the age and physical development of the child.

Physical examination on the first day yields definite tenderness on pressure which may be diffuse and not accentuated over the appendix region as in the adult; but in children proper palpation invariably elicits a typical spasticity or resistance of the entire right rectus muscle which even in the presence of general rigidity may be clearly appreciated as being increased over the opposite rectus. Another physical finding that is of extreme value in the diagnosis of acute appendicitis in children is "cutaneous hyperesthesia;" which can be easily elicited by careful pinching of the skin, with the fingers. Within forty-eight to seventy-two hours a distinct mass formation may be made out on gentle palpation over the right iliac region. Abdominal distention may be present even in the absence of actual peritonitis though this finding should always be considered as indicating a spread of the pathology to the peritoneal cavity.

In evaluating the relative significance of the symptoms it may be stated that pain in the abdomen of any child should always be considered as indicating the existence of appendicitis until satisfactory examination proves otherwise, for it is a fact that this symptom is present in every case. In very young children who cannot express themselves pain is indicated only by restlessness, a sobbing cry and the peculiar expression known as the "facies of pain." Even in older children one will miss many cases if he insists on finding pain localized in the right lower abdominal area before making the diagnosis of appendicitis, for in the vast majority of cases it is at almost any other part of the abdomen but there. It is more frequently complained of and pointed out with the finger or hand by the patient at the left hypogastrium, at the umbilicus, or at the left lower quadrant.

Tenderness and "cutaneous hyperesthesia" are extremely important and reliable, since they invariably become localized over the appendix region within twenty-four to forty-eight hours. One must always bear in mind that what may be the most important item in properly palpating a child's abdomen is to avoid fright. Approach should be gentle and reassuring, and the examining hand must be warm. Extreme gentleness in the actual palpation must be practised, otherwise contractions resulting from the resistance offered by the patient will make the examiner's effort worthless. It is important to palpate the appendix region, where we are most vitally interested, last of all, that is, after every other region of the abdomen has been palpated. In almost every case where localization of the pain has been established it can be best brought out by gentle slow pressure followed by a sudden quick removal of the palpating hand. This quick removal of pressure causes a distinct pain and is referred to as "relaxation pain;" it is felt by the patient at the appendiceal area even if the procedure has been practised at any other point of the abdomen, and when present, it is pathognomonic, and second in reliability to the "muscle guard" or rigidity of the right rectus already referred to. Generally, it may be safely assumed that abdominal pain without tenderness, right rectus rigidity (however slight) or "relaxation pain", is not due to appendicitis. On the other hand, one must be extremely certain of these negative findings before deciding against a diagnosis of appendicitis. A most important point in evaluating the significance of pain is the fact that spontaneous disappearance of pain is not an indication that the diagnosis is not appendicitis, or that it might represent improvement in the presence of appendicitis. Sudden disappearance of pain in appendicitis is a very serious, if not alarming sign of danger, since it generally means the occurrence of rupture.

In dealing with children suffering from abdominal pain it must be remembered that most children will answer affirmatively when asked if the pain is at a certain point. It is better practise to ask no questions, but depend entirely on the local muscle reaction and facial expression as one proceeds with palpation, since these are always entirely reliable, provided the child has been neither frightened nor shocked by the application of a cold hand or the sudden rough manipulation of the abdominal wall.

## DIAGNOSIS

The actual diagnosis is generally not difficult if the above points are borne in mind by the examiner. It is necessary, of course, to differentiate all conditions which are capable of producing abdominal pain and which have been already referred to.

It may be safely stated that even differential blood counts and the evaluating of total leukocytic counts are not as reliable for the purpose of differentiation as is strict observance and establishment of the following:

1. The presence of definite abdominal pain.
2. Vomiting.
3. Tenderness.

4. Right rectus digidity or "muscle guard."
5. "Relaxation pain."
6. The child's facial expression and posture.

It would be entirely superfluous in a discussion of this type to devote any time to the subject of treatment, for it must be accepted by everyone that once the diagnosis of acute appendicitis is established there is but one treatment, namely operative intervention.

However, especially in a discussion of this type there is much to be said, and much profit to be derived from free and extended discussion of the attitude and procedures to be adopted in order that the mortality rate of acute appendicitis in children, which is at present higher than that for adults, may be brought down to where it should be. It is no exaggeration to state with Barrington-Ward[13] that "the mortality of appendicitis in children should be nil. If every case was diagnosed and submitted to operation within twenty-four hours of the beginning of the attack no case should be lost except as the result of anesthetic tragedy, or the more rare surgical accidents that may follow any operation." The figures referred to above, representing the studies of Maes et al,[10] which are based on the incidence and mortality of acute appendicitis in children in our community, indicate that many opportunities have been missed, and lives of children sacrificed at the hands of appendicitis. It is not enough for physicians to exercise care and diligence in the examination of children to whom they are actually summoned. No physician fully discharges his responsibility to his clientele unless besides actually treating diseases when they occur, he also undertakes the task of educating that portion of the public that forms his clientele to the outstanding dangers of diseases. Since appendicitis among children is one of the most devastating of all diseases, and since mortality increases with errors of management in the early stage of the disease, every physician should consider it not only a personal obligation but a civic duty to teach certain outstanding facts in connection with appendicitis. These are:

1. That every abdominal pain should be considered as being due to appendicitis until it is proved otherwise by diligent examination.
2. That in the presence of abdominal pain the administration of purgatives is extremely dangerous and may be death producing.
3. Enemas should be avoided for the same reason as purgatives, and food should be withheld entirely until the physician has been called and a diagnosis established.

If these facts are impressed upon the public at large and observed as they should be by all physicians, there is no question that the mortality of acute appendicitis in children will be reduced to the point of disappearing as stated by Barrington-Ward.[13]

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# MEDICAL ASPECTS OF APPENDICITIS

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Appendicitis is rightly classed as one of the surgical diseases and there is no rational treatment except prompt removal of the affected structure, yet it is the family physician or the internist who first sees the patient in the great majority of cases. No fact in the realm of practice is better established than the value of an early operation in this condition. This is generally accepted by surgeons and acted upon if they have an opportunity, but the main weight of responsibility rests with the regular medical attendant of the family. It is he who must ever be on the *qui vive* to make an early diagnosis and act with promptness and decision. This sounds easy and often is so, comparatively, but some cases present problems from more than one standpoint.

The first of these is establishing at least a tentative diagnosis. Osler once remarked that it is seldom not knowing, but rather not looking, that gets us into trouble. A carefully taken history and a thorough physical examination will usually disclose enough evidence to insure the safety of all concerned, no matter how early the patient is seen. The most common error is that of regarding the case as one of acute indigestion. We must particularly discount the statements of acute dietary indiscretion. In fact most persons are guilty of such every day. We must remember too that the discomfort of acute appendicitis is usually referred to the upper abdomen for the first few hours. The family will often insist that the fever is not high enough for appendicitis. You know, of course, that the tendency of appendicitis is to comparatively low temperature. It is well here to emphasize the necessity of leaving the thermometer under the patient's tongue for a sufficient length of time to determine the small fraction of a degree that is sometimes present. A safe rule is five minutes, the physician watching during that time to see that the lips of the patient are kept closed. Of considerable imporance is a slight increase in pulse rate. I remember that the late Dr. Kohlmann laid more emphasis on this than on any other finding. Nausea may be denied by the patient, may be absent, or may be very slight. The fact that it has subsided cannot be taken as significant. Tenderness in the right lower quadrant may also be denied or absent or very slight. Rigidity may be so slight as to leave a doubt in the mind of the examiner. There are few of us who cannot remember cases where the dread of surgery has caused patients to deny the pain entirely. We must remember that any or all of the findings may be atypical. In fact, the first effort is often not to make a positive diagnosis as much as to enable us to classify the case as one requiring the benefit of intensive attention and thorough study. This particularly applies to the withholding of foods, analgesic drugs and especially purgatives.

The second problem is that of securing the cooperation of the patient and his family in a more thorough investigation. This naturally includes hospitalization and the use of laboratory facilities. I have often remarked that the practice of medicine is part science, part art, and part salesmanship, and one of the most difficult feats that I have accomplished has been selling a family on removing the patient to an institution on a bare suspicion of appendicitis. They are sure that it is only indigestion. He has had numerous attacks just like this before. His brother Tom and Uncle Bill are quite subject to them. A man working in the office with him was sick just like this last week, took a dose of castor oil and was at work the next day. Moreover they feel that hospitalization means operation and they dread the danger of surgical procedure. Still further they hesitate at the expense involved. Only a small percentage of the families in New Orleans or in any other community are prepared for the expense of a major operation. They are panic-stricken at the thought of the disorganization of business affairs, household duties or school work. The firmness, kindness, diplomacy and salesmanship of the attendant are frequently taxed to the limit. I have often resorted to the following illustration: "Mrs. Blank, if there was a rattlesnake in your backyard, you would not let your children play out there barefooted. If there was one chance in ten of a rattlesnake being there or even one in a hundred you would take every precaution. If there was one chance in a thousand I would not go out there without hip boots and probably would not go with them. There is one chance in three of this patient's having appendicitis. If he hasn't he may come home tomorrow; if he has, immediate attention may mean saving his life. We should surely give him the benefit of every possible chance that is at our disposal." It is here that definite statistics, such as those which have been supplied by the chairman of this program, are of unlimited value. There is nothing so convincing to the average person as the definite statement of such facts.

When the patient has reached the hospital and the surgeon has been called and the case has been thoroughly studied, there still is often an element of doubt remaining. Here again it is advisable to give those concerned the facts in the case and do it in such a way that, if a normal appendix be found on operating, it will not be necessary to dig up an alibi.

Allow me to state that the services of the internist are of more value than merely assisting in the establishment of the diagnosis. His statement as to the condition of the heart and lungs are often of importance, and where there is any doubt as to the general well-being of the patient, his continued observations may be a determining factor in the favorable progress of the patient to a normal state of well-being.

## APPENDICITIS AS A COMMUNITY HEALTH PROBLEM

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Some important considerations of the problem of appendicitis in any community are the general mortality rates from the disease, and its rate of occurrence and fatality rates in different periods of life.

A considerable amount of publicity has been directed toward the high rates of mortality from appendicitis in the population as a whole. Certain cities have been pointed out as having excessively high rates, but a comparison of mortality rates of one city with another is not a fair comparison in most instances. Hospital facilities vary in extent in different cities which affect the number of non-resident deaths occurring in any particular community.

When we calculate the rates of mortality from appendicitis per 100,000 population for the individual states we can arrive at a much more accurate picture of the differences in various parts of the United States. When this is done it readily becomes apparent that the highest mortality has been in the Rocky Mountain States. The West North Central group have been next in order. The South Atlantic and Gulf Coast States have experienced the lowest mortality of any group of states in the country.

It has been assumed that the excessively high mortality rates in the Rocky Mountain region are due to delay in operative procedures because of transportation of patients over long distances. Probably this is one of the factors accounting for the high rate but there is evidence which suggests that appendicitis occurs more frequently in this region. The evidence also suggests a lower incidence in southeastern states.

Louisiana lies in the region where mortality from appendicitis has been comparatively low as compared with other parts of the country. The knowledge of this fact should not minimize the importance of the disease as a matter of local concern. Since there has been no decrease in mortality in this state during the past decade it becomes a health problem of vital importance. Approximately 300 deaths occur each year, of which number almost three-fourths are among white persons. In passing it may be said that appendicitis mortality rates are generally higher among white than colored persons. Like cancer it appears to be one of the perils to which more highly developed peoples are subjected.

Appendicitis occurs most frequently in young people from 10 to 30 years of age. Approximately 50 per cent of all cases as reported in several large series occurred in these two decades of life. It is reported less commonly at the extremes of life; i.e., in infancy and in old age. In general, the per cent of cases is about three or four times higher at 20 years of age than in infancy and after 60 years.

It is an interesting fact that case fatality rates, i.e. the percentage of deaths among persons who develop the disease, are lowest in the ages when appendicitis occurs most frequently. In early life when a small percentage of the total cases occur, case fatality rates are relatively high. The rates decline and remain low until about 30 years of age after which time the fatality increases rapidly until it reaches the maximum among persons over 60 years old. Under 10 years the fatality rate is about 8 per cent; at 20 years about 2 per cent; and after 60 years it reaches the maximum of about 25.

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The statistical data in this paper bear out the importance of early diagnosis and proper treatment of appendicitis in young children. A more adequate appreciation of its seriousness is necessary to bring about a reduction of mortality in the first decade of life.

Among elderly people the problem is still more serious from the standpoint of fatality rates. Resistance to infection and recuperative powers have decreased in old age so that any operative procedure becomes hazardous to life. Fatality rates indicate that the chances of dying among those who develop appendicitis after 60 years of age is about one in four, as against one in fifty at 20 years.

During the past 15 years there has been some increase for the country as a whole in mortality rates as based on the number of appendicitis deaths per 100,000 of population. Most of this increase appears to have been among persons in middle and old age. In certain states any decrease which has occured appears to have taken place among young persons.

In summarizing, permit me to point out again that appendicitis mortality rates have been highest in the Rocky Mountain States, and that Louisiana lies in the region of comparatively low mortality. Appendicitis occurs most frequently from 10 to 30 years of age. The greatest percentage of deaths occurs in old age and in very young children.

# THE PART PLAYED BY THE SURGEON IN LOWERING THE MORTALITY OF ACUTE APPENDICITIS

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The discussion of the part played by the surgeon in lowering the mortality in acute appendicitis has rightly been placed toward the last in this symposium. Although acute appendictis is primarily a surgical disease, the surgeon is frequently the last person to assume the management of such cases.

The diagnosis of acute appendicitis has frequently already been made or has become quite definite by the time the patient is first seen by the surgeon, but in many instances in which the diagnosis is so evident the case is no longer one of simple acute appendicitis, but one in which one or more complications of the condition has developed.

When the surgeon has not seen the patient first, but is called in consultation, it is important that he take his own history and make his own phsical examination, including a rectal and possibly a vaginal examination, either or both of which latter may intentionally not have been done previously. A repetition of the abdominal examination after the patient has been anesthetized and when the abdominal muscles are relaxed will sometimes give additional information which may make advisable a change in the plan of abdominal wall incision or even some more important change of precedure.

It is only too well known that the general mortality rate in acute appendicitis is proportionate to the promptness with which removal of the diseased organ is accomplished, but if the surgeon is to avoid improperly planned operations, reasonable delay for the purpose of adequate observation or preparation of the patient before operation is frequently advisable. Certainly under no circumstances should the surgeon permit himself to be hurried into operating upon a patient simply because someone before him has made the diagnosis of acute appendicitis. Although reasonable delay for the purpose of further study is often justified and necessary, operation frequently must be resorted to merely on suspicion of acute appendicitis, and in doubtful cases the surgeon must persist in his positive advice that immediiate operation be performed, even following the question frequently put to him by the patient and his relatives, "Are you sure the patient has acute appendicitis and are you sure that he needs an immediate operation?"

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Much of what the surgeon can accomplish in lowering the mortality rate in acute appendicitis depends upon his ability to judge and act wisely in the management of cases of complicated acute appendicits for it is this group of cases which is responsible for the present high mortality rate. There is but one form of treatment for early or moderately advanced acute appendicitis; i. e., appendectomy. After the development of complications, however, immediate operation with removal of the appendix is associated with such a high mortality that some form of conservative treatment is now generally accepted as advisable in many complicated cases of acute appendicitis, especially those cases of acute appendicitis which have developed diffuse peritonitis. Under the latter circumstances conservative treatment, although tedious and trying for the patient and his family as well as for the surgeon, has proved to serve best the interests of the patient. In some complicated cases of acute appendicitis it may be proper to perform an immediate incomplete operation such as drainage of a localized appendiceal abscess without removing the appendix. When diffuse peritonitis is present, entirely conservative treatment is advisable when the patient is first seen, and consists of elevation of the head of the bed, allowing nothing by mouth, administration of fluids intravenously or subcutaneously, the giving of liberal doses of morphine, application of heat to the abdomen, and the employment of an indwelling gastric catheter attached to some type of suction apparatus. Patients who are receiving conservative treatment for peritonitis resulting from acute appendicitis must be constantly and closely observed for the development of residual abscesses, which must be drained. The presence of a residual clinical abscess, although usually detectable by ordinary clinical methods, may sometimes be better demonstrated by means of x-ray examination. The campaigns and drives to reduce mortality in acute appendicitis will, it is hoped, result in earlier recognition and operation for acute appendicitis, so that there will be fewer occasions for the employment of incomplete operations or conservative treatment.

In addition to the cases of acute appendicitis with complications present at the time the patient is first seen by the surgeon and in which no immediate operation is done, it frequently happens that complications develop in cases in which immediate appendectomy seemed advisable and was performed.

The necessity of restoring to a second operation is always more or less distressing to the patient, to the family, and to the surgeon, but surely there can be no compromise, for the expectant or watchful waiting policy under such circumstances too often leads to death of the patient.

The surgeon may further contribute to the lowering of mortality of acute appendicitis by the proper choice of anesthesia for there can be little doubt that the outcome in at least some cases of acute appendicitis is determined by the anesthetic employed. I mention this particularly because of the frequency with which patients or their family express a decided preference for an anesthetic of their own choice, sometimes to the point of influencing the surgeon contrary to his original and probably better judgment in this respect.

Preoperative determination of the probable position of the appendix, i.e., whether retrocecal, pelvic, in the right iliac fossa, or elsewhere, should be attempted as this may make possible the more advantageous placing of the incision in the abdominal wall. Although there is much difference of opinion as to the best type of incision, and although there can probably be no single best type of incision for all cases, the aim in all instances should be to make an incision which affords most direct approach to the appendix, which is of sufficient size to permit adequate exposure, and which will facilitate deliberate and careful operative procedure. As was discussed in the instance of anesthesia, preference of the patient in regard to location or type and size of the incision should never be permitted to influence the best judgment of the surgeon.

The surgeon can further favorably influence the mortality in acute appendicitis by thoughful postoperative care of the patient in respect to administration of fluids, prevention and treatment of the adynamic ileus frequently associated with acute appendicitis, the control of pain, and the prevention of vomiting.

Although acute appendicitis is certainly finally a surgical disease, it is essentially a public health problem which can be solved only by intelligent cooperation between the public, practitioners in the various fields of medicine, and surgeons. Reduction of mortality in acute appendicitis is fundamentally dependent upon education of the public in respect to the seriousness of the problem, the importance of early diagnosis, and the advantage of early surgical intervention, even in doubtful cases.

## THE PRESENTATION OF ACUTE APPENDICITIS IN STANDARD TEXT-BOOKS AND SYSTEMS*

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As part of their campaign to lower the death rate of acute appendicitis in that community, the committee of the Philadelphia Medical Society undertook a survey of standard textbooks, monographs and systems, to determine how accurately the subject of acute appendicitis was presented in them. Our committee has undertaken a similar survey, and we regret to report that we have come to the same conclusion as they, that the presentation is neither adequate nor accurate.

We investigated in all twenty-two books, five issued between 1893 and 1914, five between 1926 and 1929, and twelve between 1930 and 1936. The earlier books we had intended to use merely as a standard of comparison, but we found at least one of them considerably more alive to the seriousness of acute appendicitis than several very recent texts.

We were not surprised to find in these very early books exactly what the Philadelphia committee found in their survey, that the symptoms of peritonitis rather than the symptoms of appendicitis were stressed. It was quite definitely stated in one or two that perforation, gangrene and peritonitis are initial pathologic changes. It is surprising and disheartening, however, to find that error perpetuated, at least by implication, in two quite recent texts. The mortality of acute appendicitis is not likely to be lowered while the teaching is permitted anywhere that the manifestations of its complications are the initial manifestations of the disease.

We were not surprised to find in the early texts lengthy discussions of typhlitis, but we were frankly surprised to find that out-moded disease and its associates, peri-typhlitis and epi-typhlitis, listed as symptoms of acute appendicitis in books published in 1931 and 1933. One of those contributions was by one of the most vigorous advocates of prompt diagnosis and immediate operation in acute appendicitis, and if he opens his discussion with so misleading a statement, if he so far strays from the teachings of Reginald Fitz, how can his own pupils be expected to follow the right path?

It is not surprising to find in the early texts the statement that the diagnosis of acute appendicitis is "rightly regarded as easy." It is not surprising to find in them very little about one of the most treacherous considerations in this disease, that the clinical symptoms frequently furnish not the smallest indication of the severity of the pathologic change. It is surprising, however, to find modern authors laying very little stress upon diagnostic difficulties, to find them failing to emphasize the confusing clinical picture and the fact that any single symptom or set of symptoms may be absent in any case. The repeated statement in quite recent books that the picture of acute appendicitis is usually characteristic is very misleading and actually dangerous. The surgeon, who must pay for the diagnostic errors of his medical confrères, as well as for his own, knows how sadly untrue that generalization is.

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Decidedly more correct is the statement of one recent writer, that the emphasis upon the classical picture of acute appendicitis has been responsible for many deaths.

We note in the recent texts an increasing tendency to explain the variations in the clinical course of acute appendicitis entirely on the basis of variations in the position of the appendix, and we view it with disfavor. That those variations play a part, and an important one, can not be gainsaid. That they account for the whole picture is entirely untrue. A great many other factors, some of them inexplicable, are equally important. Nor does variation in position always produce variation of symptoms. I can recall two patients I have personally operated on within the last year, in both of whom the clinical course was absolutely typical, but in both of whom I literally picked the appendix off the under surface of the liver.

It is not surprising to find in the early texts little or nothing about the risks of cathartics in acute appendicitis. One author, advocating medical treatment, advises against them on the ground that they increase peristalsis and do no good. Another, who states the aims of medical treatment as the prevention of perforation and the development of a plastic peritonitis, seems likely to achieve the reverse results by his advice to give purgatives at frequent intervals. But that was a more benighted day. We know now that purgation and perforation and peritonitis walk hand in hand. It is the more curious, then, to find most modern authors mentioning cathartics only in passing. They increase the pain, they are responsible for many cases of peritonitis, they confuse the diagnosis, these things are mentioned, but with no very strong conviction. One widely used text, which devotes more than 10 per cent of the space allotted to acute appendicitis to a discussion of its historical phase, quotes Fitz's original remarks on purgation, but scarcely mentions the subject again. Small wonder internes are still found who prescribe purgatives for abdominal pain. In view of the frequency with which purgatives are taken, and the fact that at least occasionally they are still prescribed by the profession, it seems to us that this phase of acute appendicitis deserves much more forceful treatment.

It is not surprising to find in most of the early texts no very strong convictions about the promptness with which operation should be undertaken. "The probable course of the disease," says one of these writers, "can be determined at the end of two to four days, and the surgeon can then decide what to do." That has a quaint sound to modern ears, but some modern authors are equally quaint. In a widely used textbook, which has gone through many editions, one finds the very correct statement that the future of any case of acute appendicitis is clouded with uncertainty and the patient's condition may become desperately grave at any moment. With complete inconsistency, however, the author provides for operation anywhere from six to thirty-six hours after the patient is first seen. In all the texts, it seems to us, there is too much emphasis on the time element, forty-eight hours apparently furnishing the dividing line between cases in which immediate operation is demanded and those in which expectant treatment is justified. The experienced surgeon, however, knows that he cannot be guided by any such sweeping generalizations, and the more experienced he is, the more cautiously does he employ expectant treatment, regardless of the time element. One modern author states that children should never be operated on between the third and fifth day, this being the "septicemic" period. Another opens his discussion of treatment with the statement that many different views about it have been expressed, a catholicity of oulook which has no justification in a disease which is preeminently surgical. In only a few books can one find the forthright statement that early operation is justified, even on suspicion, and that it remains justified even if the appendix proves to be not seriously diseased. Those statements would be more frequent if one remembered, as one bold author puts it, that the sick appendix is a potentially perforated bowel and should be so regarded.

A surprising number of texts open their discussion of treatment with a description of nonsurgical therapy. The fact that they specify the circumstances under which it is to be used, that they distinctly limit its indications, and that they state later that appendicitis is preeminently a surgical disease, does not mitigate the bad psychology of such an introduction. Almost without exception chronic and recurrent appendicitis are discussed under the same heading as acute appendicitis, a custom which, we believe, has much to do with the light-hearted fashion in which so many students are prone to regard acute appendicitis. The acute and chronic varieties are dissimiliar conditions and should be so regarded. Almost none of the texts mention the important contribution of Wilkie on the subject of obstructive appendicitis. The single book which does emphasize that variety bases the discussion of the pathology entirely on the changes due to fecal concretions and foreign bodies, a factor no longer considered very frequent. The overlooking of Wilkie's work explains such statements as that perforation is rare in adults under twenty-four hours, and gives rise to a false and entirely unwarranted sense of security. Few books mention the serious character of acute appendicitis in old age, though most of them emphasize the added risk in extreme youth. Very few stress the significance of a sudden cessation of pain as indicating perforation or gangrene. Finally, we consider misleading and dangerous the inclusion of the roentgen ray as a possible diagnostic method in acute appendicitis. Only in the late stages of peritonitis, when it is rarely necessary, is the flat plate of value, while the giving of a barium meal in any case of suspected acute appendicitis cannot be too strongly condemned. All references to roentgen ray diagnosis should, we believe, be deleted from all discussions of acute appendicitis.

A recent textbook discussion of appendicitis begins with the statement that as long as the mortality remains what it is, all of us have something to learn about it, which reminds one of Lord Moynihan's statement, that concerning acute appendicitis wisdom has not yet descended upon us all. A textbook written in 1914 states that acute appendicitis is frequent, serious, alarming, multiple in its manifestations and phases, demanding heroic measures for its cure, as clearly a surgical disease as a broken leg, a disease which demands the services of a surgeon as soon as it is suspected, a disease in which medical treatment is relegated in the best practice to the limbo of contemptuous oblivion. Those flat-footed statements might have been uttered by the late John B. Murphy, and they ought to be imitated by all writers on the subject of acute appendicitis. Our quarrel with the books we have investigated is that they are not convincing, that they do not speak out strongly enough on such matters as the variable symptom complex of acute appendicitis, the dangers of purgation and of delayed surgery, and the serious nature of the disease. They do not, in brief, convey any notion of the treacherousness of the disease, of its inherently serious character, and of the urgency of treatment.

We take the position that any contribution to the subject of acute appendicitis which claims to elucidate it for students or practitioners should emphasize these points: its frequency; its actual and potential seriousness; the frequent disproportion between its clinical manifestations and the pathologic changes present; the high proportion of atypical cases; the resulting difficulties of diagnosis; the grave risk of purgation; the importance of prompt surgery, on suspicion if a definite diagnosis cannot be made; its increased risk in youth, old age and pregnancy. If these points are made clear, we are willing that much else should be omitted. Yet among the books we investigated we found none that stressed all of these points, and only three or four which in our opinion treated the subject at all adequately. We agree with the Philadelphia committee, therefore, that our textbooks, systems, encyclopedias and monographs should be largely rewritten.

## THE MORTALITY OF ACUTE APPENDICITIS IN THE HOSPITALS OF NEW ORLEANS;

### A REPORT*

When the Committee on Longer Life Week determined to investigate the statistics of acute appendicitis in the hospitals of New Orleans, it was our impression that the figures would give us no cause for pride. Actually we had no idea that they would be as bad as they turned out to be. And at that, they are really worse than appears from this report, which includes only surgical cases and makes no provision for patients who died outside of the hospital or patients who died in the hospital without surgery, usually because they were admitted too late for surgery to help them.

These are the facts, then, concerning the surgical cases of acute appendicitis in eight New Orleans hospitals, Baptist, Charity, French, Flint-Goodridge, Hotel Dieu, Illinois Central, Mercy and Touro, for the two-year period ending April 1, 1935. The figures are incomplete in some respects. They are not entirely accurate; a competent statistician would probably study them with a questioning eye. But we feel that they represent the situation in New Orleans, regardless of their deficiencies, and they ought to be viewed by the profession, as John B. Murphy once put it, as a blow on the solar plexus. Neither physicians nor patients have the smallest reason for regarding them with complacency.

In those eight hospitals in the two-year period 1848 patients were operated on for acute appendicitis and 107 died, 58 in every thousand, one in every 18. Appendicitis may not be a preventable disease, but it is a disease that is easily curable, and we must seek some explanation why one person in every 18 lost his life from it.

The sex incidence offers no explanation. Among males one in every 24 and among females one in every 14 died, which substantiates the general belief that appendicitis is slightly more frequent but considerably less severe in males than in females.

Racial considerations are always important in the South, and we find in this study that the mortality among negroes, 77 per thousand, was more than twice as high as the mortality in the white race, 34 per thousand. All surgeons of experience realize that acute appendicitis is considerably less frequent but considerably more fatal among negroes. While we have no intention of commenting on the statistics of individual hospitals, we feel it proper to note here that most of the surgical emergencies among this race seem to be handled at the general free hospital rather than at the hospital which admits only negro patients. That fact explains the relatively low mortality at the latter institution and the high negro mortality at the public institution.

The mortality by age groups is most illuminating. Under 13 years of age the mortality was 102 per thousand, or one in every 10. Over 40 years of age it was 146 per thousand, one in every seven. Between those years, however, it was only 36 in every thousand, one in every 33. In these middle years the greatest proportion of cases of acute appendicitis occur, but the disease, though less frequent, is considerably more severe at the extremes of life.

Still we have not discovered why in New Orleans hospitals one person in every 18 died of acute appendicitis. But our next investigations begin to make it clear. They died, first of all, because they delayed seeking medical advice. The death rate in those who were operated on within 12 hours was 21 per thousand; it rose to 28 per thousand after 24 hours, and 42 per thousand after 48 hours, and 122 per thousand after 72 hours. To express it differently, there were 30 deaths in each thousand cases, one in every 33, when operation was done within 48 hours but 117 per thousand, one in every 8, four times as many, when operation was done after that time.

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*Read by Nathan H. Polmer, M. D., for the Longer Life Week Committee.

*Compiled by the Longer Life Week Committee from the data on the surgical cases discharged within the two-year period ending April 1, 1935, as submitted to them by Baptist Hospital, Charity Hospital, Flint Goodridge Hospital, French Hospital, Hotel Dieu, Illinois Central Hospital, Mercy Hospital and Touro Infirmary.

In 944 of these cases, slightly over half, the disease was of the simple acute or the acute suppurative variety, the so-called clean case. In that group the greatest salvage of life occurred; only one in every 86 persons died. Some of these patients had delayed seeking medical advice or refused surgery or taken a purgative, but by the grace of God had escaped the consequences of their acts. Most of them, however, had sought help early. In the remaining 904 cases the disease had passed beyond the clean stage, in a few cases because it was of a highly virulent character from the onset, more often because the patient delayed seeking medical advice, or refused surgery when it was first suggested, or took a purgative, or did all three. They also had their reward. One in every nine patients in this group lost his life, more than nine times as many as in the first group, and a great number of those who survived had a stormy convalescence, a prolonged hospital stay, heavy financial expenditures, and frequently, the inconvenience and risk of secondary operations.

In 1319 cases simple removal of the appendix was done. Perhaps in a few cases something more should have been done, just as perhaps something less should have been done in a few of the remaining 529 cases. It is hard to judge from the reports and after the event. But note the difference between the groups. When simple appendectomy was done the death rate was 14 per thousand, one in every 69; when a more intricate procedure was necessary it was 166 per thousand, one in every six, nearly twelve times higher. Quite evidently it is the part of wisdom to submit to operation when simple procedures are still possible.

The second reason why these deaths occurred was because of purgation. Hospital records are notoriously inadequate on this point, and we assume, often erroneously we are sure, that a purgative had not been taken unless it was specifically stated that it had been. Even with that wide margin of error, however, the death rate with purgation was 93 per thousand, one in every 11, against 47 per thousand, one in every 21, when a purgative presumably had not been taken. When the purgative was repeated, the deaths rose to one in seven. Purgation, procrastination, and the resulting perforation explain most deaths from acute appendicitis.

The great majority of these deaths were due to peritonitis and its complications. At least 88 of the 107 can be so classified. Peritonitis is chiefly due to two things, delayed surgery and the taking of purgatives. The solution of the problem, then, would seem clear; prompt surgery in acute appendicitis, and no purgation.

We make these statements the more emphatically because of our study of these records. We had expected that the public institution would show a higher mortality than any private institution. Actually, the mortality there was lower than in any private hospital except one, an institution which ministers to a selected clientele of able-bodied men, in the prime of life, and carefully supervised medically. The patients in the public institution had taken more purgatives than in the private institutions, though at that the discrepancy is not very marked. But the patients in the private institutions were the ones who delayed surgery when it was offered. More purgation in one institution was more than offset by more procrastination in another, and the end result was too often the same, procrastination or purgation, or both, perforation, peritonitis and another fatality.

Both profession and public would do well to ponder upon this report. Too many physicians regard appendicitis far too casually; it is a disease to be respected and feared. Surely, too, the public should be taught something of its dangers. Lay persons should be taught that all abdominal pain is a danger signal, since it may be the first symptom of acute appendicitis or some other very serious disease. They should be taught to avoid purgation as they would poison under these circumstances. They should be taught to call a physician for abdominal pain which lasts for any length of time, an outside limit of four hours. They should be taught to accept surgery when it is offered to them by a conscientious physician who realizes, as all conscientious physicians do, that surgery is always the lesser of two evils.

Very few deaths from acute appendicitis will occur if the profession and the public alike bear these considerations in mind. Prompt surgery and no purgation are the solution of the problem. Other considerations cannot be ignored, but no others really matter.

### GENERAL STATISTICS FROM NEW ORLEANS HOSPITALS

1848 Cases, 107 deaths, 5.8% (58 per thousand).
Largest number, 1034 cases with 48 deaths, 4.7%.
Smallest number, 34 cases with 2 deaths, 5.9%.
Highest mortality 12% (18 deaths in 159 cases).
Lowest mortality 2.7% (2 deaths in 74 cases).

### PATHOLOGY

| | | | |
|---|---|---|---|
| Acute and suppurative | 944 cases | 11 deaths | 1.2% |
| Rupture and gangrene | 777 cases | 68 deaths | 10.6% |
| Abscess | 127 cases | 12 deaths | 9.4% |
| Total complicated cases | 904 cases | 96 deaths | 10.6% |
| Total cases peritonitis | 307 cases | 77 deaths | 25.0% |

From these figures it is evident that a person with appendicitis advanced beyond the simple or clean stage stands roughly 9 times more chance of dying than a person with the simple or clean disease.

### SEX

| | | | | |
|---|---|---|---|---|
| Male | 1193 cases | 60 deaths | 5.0% | (50 per 1,000) |
| Female | 65 cases | 47 deaths | 7.2% | (72 per 1,000) |

### RACE

| | | | |
|---|---|---|---|
| White | 1552 cases | 84 deaths | 5.4% |
| Negro | 296 cases | 23 deaths | 7.7% |

The negro mortality in all the city hospitals is thus 1½ times greater than the white. If the figures are made up only on the three hospitals which treat negro patients (Charity, Flint-Goodridge, Illinois Central), they are

| | | | |
|---|---|---|---|
| White | 846 cases | 29 deaths | 3.4% |
| Negro | 296 cases | 23 deaths | 7.7% |

This makes the negro mortality more than twice as high as the white.

### AGE

| | | | |
|---|---|---|---|
| 1 to 13 years | 266 cases | 27 deaths | 10.2% |
| 13 to 39 years | 1307 cases | 40 deaths | 3.6% |
| Over 40 years | 275 cases | 40 deaths | 14.6% |

The mortality under 12 years is thus almost 5 times higher and the mortality over 40 years 7 times higher than it is in the middle years.

### DURATION

| | | | |
|---|---|---|---|
| To 12 hours | 336 cases | 7 deaths | 2.1% |
| To 24 hours | 531 cases | 15 deaths | 2.8% |
| To 48 hours | 359 cases | 15 deaths | 4.2% |
| To 72 hours | 196 cases | 24 deaths | 12.2% |
| Over 72 hours | 334 cases | 38 deaths | 11.6% |

To state it differently:

| | | | |
|---|---|---|---|
| To 24 hours | 867 cases | 22 deaths | 2.5% |
| Over 24 hours | 981 cases | 85 deaths | 8.7% |

Or

| | | | |
|---|---|---|---|
| To 48 hours | 1226 cases | 37 deaths | 3.0% |
| Over 48 hours | 530 cases | 62 deaths | 11.7% |

From these figures it is evident that a person operated on after 24 hours stands 3½ times more chance of dying and a person operated on after 48 hours stands 4 times more chance of dying than persons operated on within 24 or 48 hours after the onset of their illness. In 92 cases, in which there occurred 8 deaths, 8.7%, the duration of illness was not stated.

### PURGATION

(Based on cases in which definite statements were made)

| | | | |
|---|---|---|---|
| Purgative taken once | 429 cases | 40 deaths | 9.3% |
| Purgative repeated | 79 cases | 11 deaths | 14.0% |
| Complicated with purgation | 357 cases | 38 deaths | 10.6% |
| Purgative apparently not taken | 1419 cases | 67 deaths | 4.7% |

From these figures it is apparent that a person who has taken a purgative is twice as likely to lose his life as a person who has not, and more than 3 times as likely to die if the purgative is repeated.

In 10 cases the purgative was prescribed by a physician.

### PROCEDURE

| | | | |
|---|---|---|---|
| Appendectomy | 1319 cases | 19 deaths | 1.4% |
| with drainage | 287 cases | 47 deaths | 16.3% |
| with enterostomy | 172 cases | 27 deaths | 15.7% |
| Incision and drainage | 60 cases | 10 deaths | 16.6% |
| with enterostomy | 3 cases | 0 deaths | 00.0% |
| Other procedures | 7 cases | 4 deaths | 57.1% |
| Procedures other than appendectomy | 529 cases | 88 deaths | 16.6% |

It is evident from these figures that when the disease is simple enough to require only removal of the appendix, 14 persons per 1,000 die, against 166 when the stage of the disease necessitates other procedures. That is, the person whose disease necessitates more serious procedures has a 12 times greater chance of dying.

### OTHER FACTS

| | | | |
|---|---|---|---|
| General anesthesia | 805 cases | 56 deaths | 7.0% |
| Spinal | 1025 cases | 43 deaths | 4.2% |
| Local | 13 cases | 6 deaths | 46.2% |
| Other types | 5 cases | 2 deaths | 40.0% |

These figures cannot be used absolutely, owing to the routine use of certain types of anesthesia in certain institutions, in which different types are used only for seriously ill patients.

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|---|---|---|---|
| Right rectus incision | 437 cases | 37 deaths | 8.5% |
| McBurney | 1291 cases | 51 deaths | 3.9% |
| Various | 120 cases | 19 deaths | 15.8% |

The comment just above applies to incisions from the point of view of individual surgeons.

Causes of death: peritonitis and its complications—85; penumonia—6; cardiac—4; embolism—2; anesthesia—2; subphrenic abscess—2; shock—2; mesenteric thrombosis, "liver death", obstruction, gangrene of cecum—1 each.

Pain was the first symptom in all but 4.5% of the stated cases. Other first symptoms listed included nausea and vomiting chiefly, headache, fever, malaise, diarrhea, anorexia.

### SUMMARY

In 8 New Orleans hospitals, in the 2-year period ending April 1, 1935, one in every 18 persons with acute appendicitis died.

One in every 86 patients died when the disease was of the simple variety, but one in every 9 died when it had become complicated.

One in every 24 males died, and one in every 14 females.

One in every 18 white persons died, and one in every 13 negroes.

One in every 10 persons died in the age group 1-12 years.

One in every 33 died in the age group 13-39 years.

One in every 7 died in the age group over 40 years.

One in every 39 persons died when operation was done within 24 hours, and one in every 33 persons died when operation was done within 48 hours, but one in every 8 died when operation was done after 48 hours.

One in every 11 persons died who took a purgative, and one in every 7 who repeated the purgative, against one in every 21 who apparently did not take a purgative.

One in every 69 persons died who needed simple removal of the appendix, but one in every 6 who needed more complicated operations.

To avoid confusion, the nearest whole numbers have been used in all calculations.

These data were collected and the report prepared by a sub-committee of the Longer Life Committee consisting of Frederick F. Boyce, M. D., Paul B. Cameron, M. D. and Elizabeth M. McFetridge, M. A.

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## LOBAR PNEUMONIA*

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Lobar pneumonia, an acute specific systemic infection, usually runs a characteristic febrile course, terminating by crisis in five to ten days. The average case presents for treatment a toxemia, associated with severe bacteremia, pulmonary solidification, partial respiratory obstruction and secondary strain on the heart. In 97 per cent of cases the pneumococcus of Sternberg and Frankel is the responsible organism.

No age is exempt. The disease occurs in the newborn and is often the terminating disease in the aged. Up to the sixth year of life the predisposition is marked, then diminishes to the fifteenth year and increases for each decade thereafter. Pneumonia occurs more frequently in males than females and is common to all races. In the South it is more fatal to the colored race than in the white. The disease is more common in cities and crowded communities than in rural districts and any state of debility renders the individual especially susceptible to the disease.

One attack seems to predispose to subsequent infections. The disease is more common in winter, and particularly the latter part of winter before spring. It is likewise more frequently seen in cold climates than warm, due to the lowering of resistance dependent upon chilling and changing temperature.

The pathologic changes in the lungs attacked by pneumococcus are similar to those of any other tissue in a state of acute inflammation. First there is invasion by the micro-organisms, followed by rapid influx of blood in the infected area, producing a stage of red hepatization which is followed by a stage of resolution.

The symptomatology of lobar pneumonia is probably more typical than any other one infectious disease. Ushered in by severe chill which lasts from 15 to 30 minutes there soon follows a definite rise in fever. If the rectal temperature is taken the patient will show fever during a chill. Associated with this is general pain over the body, usually marked headache succeeded in a few hours by a sharp, agonizing pain on the affected side. Ultimately there develops a short, dry, painful cough that brings up a thick, most characteristicly tenacious sputum, slightly blood tinged. The respirations are markedly increased out of proportion to the pulse rate so that instead of a ratio of 1 to 4 it is often 1 to 2 or less. The pulse is full and bounding unless there is cardiac involvement.

As the symptoms are so characteristic, likewise the physical signs are unequivocal. The patient lies on the affected side and the cheek on that side usually shows a red blotch. Herpes are present on the lips. The whole appearance of the individual is that of one seriously ill. The signs over the lungs briefly are: the affected side, measuring with a tape, is found to be larger than the other; Skodaic resonance is heard above the area of engorgement which in turn gives a high pitched, dull to flat note; breathing early is often suppressed and at the end of inspiration are heard fine crepitant rales. When consolidation is complete blowing tubular (bronchial) respiration is heard; as the exudate softens and approaches resolution the rales reappear and the rale indux becomes the rale redux. Tactile fremitus and vocal resonance are markedly increased in the stage of consolidation. Frequently the faintest whisper can be heard with the stethoscope.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

### TREATMENT

For the purposes of this paper the treatment of the patient sick with pneumonia may be divided into three sections: (1) general care; (2) management of special symptoms; (3) specific and non-specific measures.

1. *General Care*: Regardless of how authorities differ in estimating the value of particular forms of treatment, all are unanimous in their opinion as to the importance of proper general care of the patient suffering with pneumonia. An intelligent nurse is as necessary as an intelligent physician. Preferably the bed should be a simple hospital bed with a firm mattress. The room should be well lighted and well ventilated, free of unnecessary furniture and draperies. The mattress should be protected by a rubber and draw sheet and there should be an abundant supply of clean linen. The patient should be kept warm but not burdened with unnecessary covering. The temperature of the room should be from 60-70° F. if possible, and for the very young or very old slightly warmer.

The open-air method of treatment is valuable if a patient can be kept warm. It is not very practical in the average home. The position in the bed is of importance. While usually the patient rests better in the horizontal position, the position should be changed at frequent intervals to avoid hypostatic congestion. In elderly people there is no reason why the head and shoulders should not be raised if it adds to the patient's comfort. In most instances the heart of the patient with pneumonia ultimately decides the outcome. For this reason great care should be taken to conserve cardiac reserve. The bed pan and urinal should be used in all cases. Physical examination of the chest after the first or second day to establish accurate diagnosis causes the patient needless exertion and serves no useful purpose. The temperature taken by rectum is thoroughly reliable.

Care of the body is much the same as with any acute illness. It should be kept scrupulously clean. Alcohol rubs followed by talcum powder soothes the skin. Ice caps to the head may quiet the nervous system, at least they often give comfort to the patient. The extremities should be kept warm; apply external heat if necessary. Careful hygiene of the mouth largely avoids oral sordes and decreases the liability to secondary mixed infections. The bowels should be kept open, preferably by a simple enema. A brisk cathartic at the onset certainly seems to limit subsequent intestinal toxemia.

*Diet,* because of the limited course of the disease, need not be as complicated as in an infection of longer duration. The food should be largely liquid in character and given in frequent small quantities rather than over-loading the stomach. Milk, eggs, broth, purees, liquid cereals and fruit juices meet the requirements. A cup of hot black coffee once or twice a day gives comfort to most adult patients. Opinion is divided on the use of alcohol. All authorities agree that it has some food value given in small quantities, but most of them fear secondary depressing action when used as a quickly acting stimulant. Water or liquids should be given freely, at least two quarts a day, but in small, often repeated quantities.

In delirium or in patients who nourish badly glucose in 5 to 25 per cent solution is often useful. This should be given in small to moderate quantities, usually 250 c.c. of 5 per cent solution sufficing. Excessive amounts may increase the tendency to pleural effusion and may embarrass the patient's circulation and respiration.

2. *Management of Special Symptoms*: There are certain cardinal symptoms common to all cases of lobar pneumonia and the method of treating them is almost as varied as there are authors and books. Success in any one method seems to be dependent upon the knowledge and

skill of the physician using it. Where one may succeed another will fail.

A *chill* is generally the first symptom to present itself. If the doctor is called immediately which is rarely the case, he will find efficient hot drinks such as tea, coffee or a glass of hot water containing a teaspoonful each of aromatic spirits of ammonia and compound spirits of lavender. Hot water bags to the body may cut the chill short; morphine, with atropine in the usual dosage given hypodermatically, is almost specific.

*Pain* in the chest is dependent upon pleurisy. The patient should be given one grain codeine hypodermatically or if very severe one-quarter grain morphine may be given. If there is a competent nurse on duty codeine can be repeated as often as necessary. If not, the patient may take repeatedly by mouth a combination of codeine and aspirin, amytal or any of the many analgesics that do not possess a markedly depressing action on the circulation.

Local applications to the chest are multifold in kind and character. Some praise them to the sky and others condemn them as unscientific and bunglesome. Strapping the chest with adhesive tape over the affected lung limits expansion and pleural separation and adds comfort to the patient. The adhesive is hard on the skin, which should be scrupulously watched. A tight binder made of cloth or a towel tied snugly around the chest may suffice in mild cases. A mustard plaster applied at regular intervals to the chest over the bronchial tubes has many advocates. Blistering, of course, should be avoided. The continuous application of mustard and flax seed meal, strength of 1 to 10 and kept hot often relieves the pain. Turpentine stupes and poultices of meal, beans, cabbage and lettuce leaves, slippery elm bark or any other substance which maintains heat have been tried. I personally, although my doctor friends chide me about it, like antiphlogistine applied thick and hot daily until the fever falls. Whether or not it hastens the process of the disease I cannot say, but I know that if properly applied it adds comfort to the patient and largely avoids the use of narcotics. In involvement of the lower lobes the pain is not infrequently referred to the abdomen, particularly in children. The physician should guard against mistaking this for some abdominal condition, on the other hand appendicitis does frequently occur with pneumonia. I have seen four cases in my own practice proved by appendectomy.

For *cough* codeine, along with the remedies suggested for pain, is the anchor rock. It may be given hypodermatically or combined in a cough syrup with other sedatives and expectorants. A few drops of syrup of ipecac added to the cough mixture prevents the mucous membranes of the throat and bronchi from becoming too dry. In children small doses of Dover's powder at three or four hour intervals the first few days quiets the cough, relaxes the skin and gives the child a rest. At about the time of resolution ammonium carbonate provokes cough, helps to liquify the thick tenacious sputum and is a mild respiratory stimulant.

*Fever* in pneumonia rarely requires active interference and in itself is one of nature's provisions to control the infection. The pneumococcus does not thrive in a temperature of 104° F. Proper feeding, bathing and sponging and the avoidance of adbominal distention serve to keep the temperature within reasonable bounds. A continuous or remittent fever of 104° or over cannot be overlooked and may produce cerebral symptoms. Sponging with alcohol or weak vinegar water whenever the temperature reaches 102° is nearly always sufficient to control hyperpyrexia. If the heart is weak cold applications should be used with care. Often warm sponging of the body, with an ice-cap to the head, is effective. The tub bath should be used only as a last resort; it exhausts the patient and may cause a fatal collapse. The use of antipyretic drugs may at times be indicated for a brief period. Many of these are depressing and should be used guardedly.

*Abdominal distention* is not likely to cause concern if the intestinal tract is thoroughly emptied at the beginning of the sickness. If it occurs and becomes marked there may be serious interference with the circulation and respiratory movements. With the slightest sign of distention the diet should be restricted; milk and fruit juices withheld. In mild cases glycerine suppositories are helpful. Hot turpentine stupes, on and off at 20 minute intervals, often aid. Insertion of a rectal tube may allow the gas to escape; it may be left in indefinitely. High or low enemas may be given, using of course a bed pan. The enema may be plain soda water or drugs which stimulate peristaltic action may be added, as turpentine, asafetida, soda and molasses, or mineral oil and agar preparations. Eight ounces of pure glycerine may be instilled six or eight inches into the rectum or it may be given ahead of a water enema. It is very effective. In our hospital we have found one of the very best methods of controlling this symptom is the "Harris drip" which consists of a gallon douche can one-half filled with warm solution of 5 per cent glucose in bicarbonate of soda. The can is placed on a table beside the bed at the level of the symphysis pubis, about two feet of tubing is attached to the outlet and this is attached by a glass connecting tube to an ordinary rectal tube which is introduced about six or eight inches. The fluid runs into the rectum and sigmoid until it has reached the level of the fluid in the can which insures that a single column of fluid fills the can, tube and sigmoid. If the distention is high, gastric lavage, using a duodenal tube through the nose, is beneficial. Of the drugs used to control this symptom surgical pituitrin and atropine are most popular.

For *delirium* ice-caps to the head and sponging of the body with alcohol suffice in mild cases. Codeine and morphine probably occupy first place amongst drugs. Recently the barbital group, primarily nembutal, has become popular. Other drugs used are chloral, whose action on the heart should be carefully watched, the bromides and such coal-tar derivatives as phenacetin. Paraldehyde, and recently pantapon and dilaudid have become popular. In alcoholics be sure that the delirium is not the result of sudden withdrawal of liquor. I have seen at least one case in which this has happened.

*Crisis* requires close watching. Rest, quiet and assurance to the patient that he will soon be better are often sufficient. Use heat to the extremities and stimulate, as indicated by the reduced temperature and state of circulation. Remember this is nature's process and the physician is only called upon to prevent too sudden change and collapse.

3. *Specific Treaments*: This may be divided under the headings of: (a) drugs; (b) special methods and (c) the biologics.

Drugs may be listed as heart stimulants, diffuse stimulants and respiratory stimulants. Of the *heart stimulants* there are two distinct schools of thought in regard to the use of digitalis, the one teaches that inasmuch as death in pneumonia is often due to toxic heart changes it is the safe and sensible practice to strengthen the heart muscle before weakening occurs. Hence digitalis is administered early in the disease. The other school teaches that the heart should be treated in pneumonia just as it is in any organic disease, withholding the drug until nature seems to be failing. Undoubtedly many cases recover without any stimulation. It matters little what form of the drug is used so long as the effect is produced. There are many excellent preparations of the tincture, powder and ampoule on the market. Nitroglycerine should never be used indiscriminately. It may do harm, but it may have value in the arteriosclerotic by overcoming peripheral resistance and lessening the tension in the hardened arteries against which the heart is laboring. Caffein sodium benzoate is valuable and effective in threatened collapse. It should be used in doses of from 1 to 4 grains and repeated at liberty. The use of strychnine is dubious. It is somewhat of a stimulant to the respiratory centers and has more or less general tonic value. Strophanthin has no particular advantage over digitails and is not as reliable. Adrenalin chloride, injected into the muscle or given by hypodermatoclysis, is a very potent stimulant to the heart as it raises arterial pressure. It is dangerous in edema of the lungs. Camphor in oil in doses of 3-5 grains may be injected every one to three hours up to as high as 40 grains a day in cardiac asthenia. Its value is dubious. Sparteine sulphate has been recommended for its effect on the right heart. It often corrects cardiac irregularity in small doses of one-quarter to one-half grain.

*Diffusible stimulants* sustain the heart force during short periods only. Their effect is evanescent. Most valuable in this group is the aromatic spirits of ammonia and compound spirits of lavender. They should be given in small, often repeated doses.

*Respiratory stimulants,* used when respiration lags, often tide the patient over. In this group are found such drugs as strychnine, ammonium chloride, coramin and oxygen. Nothing so quickly restores color to the cyanotic as oxygen gas. The cyanosis is probably due to the fact that the hemoglobin is less saturated with oxygen than normal.

*Drugs used as semi-specifics:* In the hope of bringing into contact with infecting organisms some chemical substances which will hinder its growth and at the same time enhance the bacteriologic and the anti-toxic properties of the blood various drugs have been used with some success.

Thirty years ago quinine was a very popular treatment, being given in enormous doses. Creosote carbonate or creosotal undoubtedly have value. They should be given in 7½ grain doses every three or four hours over a period of several days. Aconite and veratrum viride, the so-called "internal bleeders" enjoy popularity among the followers of homeopathy. They may possibly have some value in the early state of engorgement. Guiacol and pilocarpine are two depressing antipyretics which are generally condemned. Turpentine, phenol and the intravenous use of aniline dyes, especially mercurochrome, have their advocates. Recently a paper was read in Chicago on the intravenous use of 20-33 per cent solution of alcohol in normal saline in which the author claimed to obtain striking results.

Special methods aside from drugs undoubtedly have some virtue in the treatment of pneumonia. Thus the water cure, the open air treatment, venesection and physiotherapy, whether in the form of light, electricity or hot applications, all have their good points.

It is with biologic preparations that there is the most promising outlook in conquering eventually this dread disease. Any attempt to control bacterial infection by specific anti-sera predisposes a knowledge of the type of organism responsible for the infection. The activity of anti-sera may be directed against the living organism resulting in its death or it may be directed against the production of bacterial cells circulating in the blood and lymph. Dochez and Gillespie have shown, however, that pneumococci isolated from cases of pneumonia may be divided into four types of which the first three are specific so far as their immune reactions are concerned. Anti-immune serum produced by the injection of a horse of a species belonging to type I has a specific action against all the members of type I but none on organisms of any of the other types. Likewise the same holds true with the pneumococcus belonging to type II and possibly to type III. In recent years incidentally a large number of additional types of pneumococcus have been isolated for some of which a specific anti-sera has been found effective.

The immediate problem is to determine, after diagnosis has been made, to what type the offending pneumococcus belongs. Sputum, definitely coughed up, is injected in a small amount into the belly cavity of a mouse. In about six hours the mouse is killed, the abdominal cavity washed out, the cells and fibrin thrown out by slow centrifugalization. A suspension of organisms is then obtained and agglutination with various types of serum made. Once the type is determined serum treatment is begun. In view of the fact that more than 50 per cent of patients have type I or II pharmaceutical houses have stocked the market with anti-pneumococcus serum predominating in these two types, although single type serum may be quickly obtained.

In addition to serum therapy other forms of biologic preparations have been tried with varying success, such as vaccines, sero-bacterins and foreign proteins. These are not to be recommended.

### CONCLUSIONS

It is safe to state at the present time there is no sure and certain way to treat lobar pneumonia. While some patients seem to respond beautifully to a particular method of treatment, others do not do so well. Again some do well without any particular treatment. Distinct progress is being made in developing a satisfactory anti-serum. It is hoped that some day this method will be so universally and so accurately employed that the mortality of the serious disease will be greatly decreased.

In a limited time for this presentation no attempt has been made to cover all the details of a subject so voluminous as lobar pneumonia. I can only hope that this brief outline of management of lobar pneumonia may prove helpful to you in the handling of your own cases.

### DISCUSSION

Dr. F. W. Harrell (Jennings): We are fortunate to be privileged to hear so practical a paper on a disease as old and ubiquitous as lobar pneumonia. As pointed out by Dr. Smith, lobar pneumonia still remains a disease to be treated symptomatically. Being epidemic and endemic, self limited and terminating abruptly, it should offer problems in immunity that are readily solved. However, we know that this is not the case.

The immunity developing in favorable cases of the disease and the phenomena associated with the crisis has thrown some light on the subject of immunity to the pneumococcus. We know that crisis is not due to sudden loss of virulence of the micro-organisms, nor to a definite anatomical change in the lung. We know that the percentage of positive blood cultures and the intensity of the blood invasion, if there is one, decreases as crisis or lysis approaches. Too, it has been demonstrated that the number of viable organisms recovered from material obtained from lung puncture diminishes even to zero during or after the crisis. A satisfactory explanation has not been offered of the condition responsible for these changes, but it seems that the only antibodies appearing in significant quantities are substances that produce phagocytosis.

Possibly a state of allergy to the pneumococcus may explain many of the manifestations of the disease. The predominating exudative character of the local reaction, its intra-alveolar, non-interstitial localization, and abrupt onset are at least suggestive.

Along with the sundry antibodies, whose contribution and degree of immunity to the pneumococcus has not yet been established, there are also developed the so-called protective bodies. They are highly specific and are usually found in the blood at or just before crisis. In addition to these there are also to be found the so-called soluble substances of Avery. Like the protective bodies they are highly specific for each type of the pneumococcus. They are non-toxic, non-antigenic, but possess the power to neutralize the immune substances developed by the patient. It is formed in the capsule of the organism and enhances its virulence by preventing phagocytosis.

The most important function of the immune bodies then is to prevent the entrance of the pneumococcus into the general circulation thus keep the disease localized to the lung, in which event recovery will probably follow. Contrari-wise if the pneumococcus produces enough soluble substance to neutralize the immune bodies, phagocytosis will be prevented and the patient will die of a pneumococcic septicemia.

For the average physician, specific sera are not practical. He cannot collect the material and have it typed early enough to be of value in the usual case. Again, the technical difficulties in administering so powerful a serum are such that it should not be attempted outside of a well equipped hospital. Its real value has only been proved in type I, and then very early in the disease. Its use does not produce the striking reduction in the death rate that has been claimed for it. Although it is claimed to limit the pneumonic process in the lung, resolution occurs no faster than those cases not receiving the serum, and complications seem to increase following its use, such as empyema and focal infections.

What has been said for the sera holds for the antibody solutions. Though they may avoid serum disease or early serum reactions, they quite regularly cause reactions of the foreign protein type. Since lobar pneumonia has many characteristics suggestive of allergy, it might prove very disastrous to flood the already over-burdened system with more of a foreign protein.

Although many cases of moderately severe pneumonia from which the patient recovers after 6 to 10 days of fever, the pulse is no faster than is consonant with the elevation of temperature, and in some fatal cases it appears that the death is entirely respiratory. However, in at least 15 per cent of the cases the pulse will show some type of irregularity, and again the heart should be regarded as pumping harder because of consolidated areas in the capillary bed. Too, the heart muscle is poisoned by the generated toxins. The picture then is: A poisoned cardiac musculature with an irregularity of rate and rhythm, and possibly a dilated right heart which is receiving insufficient blood and nourishment because of the stretching and narrowing of the coronary vessels. Digitalis then becomes the drug of choice. It should be started the day the diagnosis is made and in sufficient amounts to be of value.

In pneumonia much better results will be obtained if glucose is used as a first rather than a last resort. Possibly because of the anoxemia the stored glycogen is soon consumed. Or possibly the liver is putting its detoxifying function to the front at the expense of its glycogenic function. At any rate the heart is a great user as well as a great store house for glucose, second only to the liver in this capacity.

Dr. H. O. Barker (Alexandria): We have treated about one hundred cases of lobar pneumonia in the last year and have found that we get a great deal of benefit from serum, typing the cases by the rapid method. I think anyone can learn to type them in a short while by a few minutes instruction in the laboratory. You can type Nos. I, II, V and VII, and we know most cases in children are type V and VII. We have given this serum with remarkable results, the patients becoming free of fever in 24 and 48 hours. These cases were diagnosed too by roentgen ray, and they were the real pneumococcus, not just supposed to be pneumococcus. They are typed by the rapid Sabin method, which can be done in 20 minutes. The type is distinctive and the serum is specific.

We have treated a great many C.C.C. boys and young men, and find nearly all of them fall in type V or VII. We find old cases will fall under type III, and, of course, we have no serum for that. A great many older people will fall in type I and II, and, of course, we have a serum for those types.

We use Lederle's serum, not the combined. We use serum No. 1 for type I, serum No. 2 for type II. Recently, they put out types V and VII combined, and we now treat pneumonia with this type serum. I cannot see why the manufacturers put them together when formerly they had them separate.

We also get good results with diathermy.

Dr. Allan Eustis (New Orleans): One of the greatest advances in the treatment of lobar pneumonia is early decompression of the lung by introducing air into the pleural cavity. This has been practiced for many years in the treatment of tuberculosis, but was applied in pneumonia several years ago by a Texas physician. I believe that it was the means of saving my son's life. His respiration was 52, pulse 170, with severe pleuritic pains on respiration. In 15 minutes after Dr. Chaille Jamison had decompressed the lung with 500 c.c. of air, all pain had subsided, and respiration dropped from 52 to 32. I have never seen such a spectacular transformation in my life.

Dr. Jamison has had several cases in Charity Hospital where diagnosis was made early and before adhesions had taken place between the pleura and lungs; it certainly relieves the patient. Another advantage of it is that in the early stages when it is difficult to obtain sputum for typing, large quantities are coughed up at once.

Dr. F. R. Frazar (Merryville): I want to compliment Dr. Smith on his paper and also wish to state my experience during the recent epidemic of influenza and pneumonia. I made a diagnosis of pneumonia in about 37 cases, (my records are incomplete). I found it hard to make a differential diagnosis between "flu" and pneumonia on the first visit, unless the consolidation was unilateral, as the symptoms were almost the same, ushered in by chill and high temperature. On several occasions, I made a second visit before finding rales to make the distinction between the two. As to sputum, I found in influenza cases a tenacious sputum with even more blood than in pneumonia, the sputum of pneumonia being of a more frothy nature.

I want to relate the history of a case, I have not seen one like it. A girl of 17 years had a chill, followed by temperature of 106°, and temperature ranged from this down to 102° for eight days. On the evening of the eighth day, it dropped to 100°; on the morning of the ninth day the temperature was 104.4°, and ranged to 103° until the seventeenth day, when it dropped to 96°. The patient recovered. Now the peculiarity of this case was that all the trouble was in one lung, findings being practically in the same area. There is no doubt in my mind that there were two cases of penumonia, one following the other in the same lung.

Dr. Morgan Smith (In conclusion): I am sorry that the time was so limited that we did not get really into the part of the paper that I wanted to bring before the Society. I thank these gentlemen for their remarks. I was interested in what Dr. Eustis had to say about decompression.

This much stands evident: That at the present time there is still no safe, sure way to treat lobar pneumonia. Each man advocates his own method of treatment. Occasionally, we see excellent results when we do not do anything at all. It is difficult to prove the value of any one form of treatment.

There is a great argument going on now as to whether or not serums really do what they are supposed to do. The pneumococcus is an endotoxic germ and it is doubtful if it can be affected by a serum.

In the big camps, they use convalescent serum a great deal and claim wonderful results. There are as many ideas of treatment in pneumonia as there are doctors in offices. The treatment of penumonia gives us something to think about: let us hope some day a method will be developed more sure than it is today.

# MYCOTIC INFECTIONS OF THE LUNGS*

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The object of bringing this subject to your attention at this time is to stress the importance of an early diagnosis and prompt effective treatment in time to save the individuals whose lungs are involved in what might be considered an acute mycotic infection. Rare and unusual diseases or conditions should undoubtedly be reported and published as a matter of record, but there is some question as to the wisdom of taking up the time of a number of men for such purposes. The condition under discussion is not a rare one, particularly during the period since the World War and in the warmer belts of our own country. It seems to become more prevalent each year and seems to affect all classes and all ages, and is being diagnosed more often than heretofore. Many of us are "tuberculosis conscious" or "lues conscious" in the handling of chest conditions and if more of us become "mycosis conscious" this paper will not have been in vain.

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It is not the intention of the writer to go into lengthy discussion of the history, etiology or the bibliography of this subject since many others far more competent have done so before this society from time to time. During the past eight or ten years approximately fifteen cases of lung mycosis have come under the observation of the writer in the capacity of roentgenologist in St. Francis Sanitarium, Monroe. Many of them were spotted by means of roentgen ray studies of cases sent in primarily on suspicion of tuberculosis.

### SYMPTOMS

Hemoptysis is frequently the initial indication of onset. Castellanni refers to this as hemorrhagic bronchitis. These patients seek the advice of the physician often in dire distress because they have been coughing and spitting blood. This may vary from tinged or blood flecked sputum to rather massive hemorrhage, They may be fully persuaded in their own mind that they have "galloping consumption" and had not even suspected it before this onset which came on with very little warning. Alarm is written in box car letters on the face. They may not appear acutely ill unless the hemorrhage has been sufficient to deplete the body. The temperature will probably register normal or possibly a slight elevation most likely below a hundred degrees. There may be slight dyspnea or breathing of an asthmatic type. Physical examination of the chest will probably reveal moist or sibilant rales about the hylus, or around the base of the lungs, while all the other physical signs will prove negative.

### X-RAY FINDINGS

Fluoroscopic inspection of the chest will give very indefinite findings or possibly nothing on which one would or could hazard a diagnosis. A slight increased infiltration in or about the hylus may be noted and possibly a slight limitation of the expansion may be present. The roentgen ray plate findings are much more definite and conclusive. The absence of tuberculosis is readily established although both diseases may be present in the same individual. Usually there is a marked thickening of the bronchi to one or more lobes while the adjacent lung fields show a rather marked infiltration with gradual fading out in the more distant lung fields. In some cases they may assume a cauliflower like appearance. The picture may closely resemble a bronchopneumonia in the early stage or possibly undergoing resolution. The apparent well being of the patient along with the history will rule out the possibility of pneumonia. Many eminent roentgenologists make the unqualified statement that this condition can not be diagnosed from the roentgen ray studies alone. Our reply to this view is that the same might be said in regard to tuberculosis where the well known triad of findings—clinical, laboratory and roentgen ray—completes the diagnosis. But certainly roentgen ray findings often point their way and make the differential diagnosis possible by eliminating all other possible causes that might bring about the physical and clinical manifestations.

### LABORATORY FINDINGS

Positive laboratory findings are in a sense essential for a definite diagnosis especially if we are to complete the three point diagnosis in reference to tuberculosis. It is a well known fact that moulds are frequently found in mouths of apparently healthy individuals and this necessarily suggests a thorough cleansing of the mouth before specimen for examination is obtained. The bloody sputum is usually copious and may be almost entirely blood. It is usually free of tissue fragments or caseous material. In the hands of experienced bacteriologists the yeast cells are readily recognized. Finding of these cells, however, does not clinch the diagnosis as does that of acid fast baccilli in tuberculosis but it is confirmatory at least. There are possibly one hundred and fifty varieties of yeast cells not all of which are pathological to man.

### TREATMENT

Early recognition of this disease is essential to rational and effective treatment. If it is not recognized and goes along untreated it most probably will become a chronic affair resulting in multiple abscess formation often proving intractible or even fatal, although most cases will eventually recover. It is of very great importance that the differential diagnosis between tuberculosis and mycosis be established in order that rational therapy may be instituted. The iodides are specific in mycosis while this is not the recognized treatment for tuberculosis. Potassium iodide may be given in full doses and sodium iodide may be given intravenously to good advantage. If this line of treatment is instituted early the results are spectacular. Abscess formation with destruction of lung tissue is fortunately a rather slow process and ample time is allowed usually for close study and a correct diagnosis before treatment is begun. In children the syrup of ferrous iodide seems to be equally effective. In chronic cases small repeated doses of roentgen ray is of great help as is the case in practically all types of fungous infections. When abscess formation actually takes place it soon becomes a mixed infection proposition with all of its serious consequences.

### CASE REPORTS

Case 1. A man 22 years of age, a woodsman getting out logs. When brought into hospital on a stretcher he was badly depleted from having been bleeding from the lungs for approximately one week. A check up plate was made on this patient at once with the results shown on this plate—Note the marked thickening over the greater part of the lower left lobe and about the hylus. Laboratory check up of sputum revealed the presence of numerous yeast cells. Intravenous administration of sodium iodide effected a rapid and uneventful recovery.

Case 2. A young man 27 years of age, a lineman weighing 185 pounds, walked into the hospital from the referring doctor's office near by. Had been bleeding from the chest for three days. Note the absence of tubercles in the apical regions and the infiltration about the right hylus and the lower right lobe. Intravenous sodium iodide cleared him up.

Case 3. A student away from home, 18 years of age, had been expectorating small amount of blood for ten days. Was brought home a few days before the holidays and placed in the hospital for observation and study. Note the cauliflower like infiltration in the hylus region on each side with extension into the right middle lobe. Laboratory tests of sputum showed yeast cells in abundance. Iodide medication quickly put him on his feet and he returned to his studies only about one week late.

Case 4. This child, 7 years of age, had been coughing for several days, blood was noted in the mouth and on the child's pillow where it slept. This was reported as a probable fungus infection. The pediatrician immediately put the child on syrup of iodide of iron. Prompt recovery followed.

### DICUSSIONS

Dr. T. M. Oxford (Shreveport): I enjoyed the paper given by Dr. Moore.

It seems that mycotic infection must be endemic in Monroe. I remember a case who came from Monroe that was under my observation about four years ago on the orthopedic service in Shreveport Charity Hospital. This case came in with blastomycosis of the sternum. The pus did not show the blastomyces. The blastomyces invaded the lungs, the skull and right ankle. Diagnosis was proven by biospy.

At this time we instituted iodide therapy and ran this up to around 1200 grains a day. Also, the radiologist at the hospital gave x-ray treatments over the lungs, skull and ankle. We finally had to amputate the ankle due to the poor general condition of the patient.

Following several months' treatment as above outlined, and with occasional doses of neosalvarsan, this patient gradually improved. At the time we started treatment, practically one-fourth of the skull was gone. At the present time, the wounds on the skull and over the sterum are completely healed.

From time to time, it appears that one of the ribs will flare up.

I had several cases of skin blastomycosis which I treated with iodide alone, iodide by mouth, 1200 grains a day, and a diluted solution of potassium iodide that is about a ten per cent solution which is applied to the skin. All these lesions healed. Perhaps the x-ray and iodide together accounted for the successful treatment of this condition.

Dr. M. T. Van Studdiford (New Orleans): It is not clear to me what type of mycotic infection of the lungs is being discussed.

If is is blastomycosis, I do not agree with the discussion that the iodides are of any therapeutic value but instead it has been my experience that the administration or iodides are deleterious. I have never seen a generalized skin infection of blastomycosis improved by iodides, and have not seen any systemic infections of blastomycosis improved by iodides or cured by any method of treatment. However, literature contains proven infections which got well with and without therapy.

Blastomycosis is a disease which gets worse and better in cycles. If you give iodides when the cycle is toward an outbreak, you make the condition rapidly more aggravated. If you start iodides when the condition is on the decline there appears to be some apparent therapeutic value to the drug, however this is only due to a systemic resistance which has developed and healing will progress faster without the iodides than it will with them. Therapy of skin infections of blastomycosis are best treated by cauterizing doses of x-ray or radium. I base the above conclusions for all types of blastsomycosis on some hundred patients treated at Charity Hospital.

Dr. D. M. Moore (Monroe): The object of this paper was to bring out the fact that early recognition of this conidtion and adequate treatment will prevent just such conditions as were described in Charity Hospital. When these cases are recognized early and are given the iodides, they have all gotten well in our cases. They have responded beautifully. Bleeding stops immediately.

As to the cycles, I believe if you get them in their first cycle, when they are early, you wipe them out. That has been our experience. Of course, in these chronic cases of blastomycosis, you have a proposition there to deal with.

Dr. Jack Dorish, of Atlanta, states specifically that iodides are specific in mycotic infections of the lungs. I think that experience has been borne out in our handling of the cases in our territory. As to whether they are endemc in Monroe, I do not know.

## JAUNDICE*

FRANK HAGAMAN, M. D.
JACKSON, MISS.

Jaundice is an objective clinical symptom characterized by yellow staining of the skin, sclera and mucous membranes. It is not dependent on the presence of bile, but is caused by a pigment derived from red blood cells. This pigment is normally eliminated by the liver, and serves merely as coloring matter for the bile elaborated there. It regularly accompanies those disease conditions which, either by increasing the production, or interfering with the excretion of bile pigment, produces a supersaturation of pigment in the circulating blood, and is nature's effort to dispose of this excess by depositing it in the body tissues. To the clinician, its greatest importance is from the standpoint of diagnosis, since once the disease producing it is cured, the accompanying jaundice promptly disappears.

To understand properly the relation between jaundice and disease, it must be remembered that bile pigment is not a product of the liver parenchyma, but instead is derived from hemoglobin and is formed in the endothelial cells lining the reticulo-endothelial system. In the spleen, bone marrow, and to a less extent the Kupffer's cells dotted along the capillary walls of the portal circulation hemoglobin liberated by the normal disintegration of red blood cells is separated from its iron, and bilirubin (bile pigment) formed. In normal metabolism, this bilirubin is carried by the blood stream to the liver where it is filtered through the polygonal cells into the bile duct, and thence to the intestines. Here, due to the action of bacteria, it is changed into urobilinogen and in great part eliminated as such with the feces. A small portion, however, being absorbed from the intestine is carried by the portal vein back to the polygonal cells, and either again excreted by them or passed into the general circulation to be excreted by the kidneys.

So that this process might be expressed graphically, McNee has diagrammatically represented a lobule of the liver as consisting of closed tubes of polygonal cells terminating in the bile ducts and surrounded by capillaries from the portal veins and hepatic artery, which in turn, end in the hepatic or central vein. While passing through the capillaries, the bilirubin content of the blood is withdrawn and deposited in the bile capillaries where it first comes in contact with bile.

Increased concentration of bilirubin in the circulating blood (bilirubinaemia) may therefore be caused by:

1. Accelerated disintegration of red blood cells, with the formation of bilirubin faster than it can be excreted by the liver.

2. Disease of the polygonal cells preventing the normal elimination of bilirubin from the blood stream, thereby producing retention of bile pigment in the blood.

3. Obstruction of the bile ducts, which does not allow the free flow of bile and bile pigment

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into the intestines, and by back pressure on the liver cells, causes reabsorption of the bilirubin into the general circulation.

Using the above as a basis for classification, McNee in 1913 suggested the division of jaundice into three groups:

I. Hemolytic.
II. Toxic or infective.
III. Obstructive.

Since that time, objections have at times been offered to this grouping, and it is possible that future research will necessitate revision.

### I. HEMOLYTIC JAUNDICE

Congenital or familial hemolytic jaundice.
Acquired hemolytic jaundice.
Banti's disease.
Pernicious anemia.

Included in this group are those diseases whose accompanying jaundice is due to increased destruction of red blood cells and formation of bilirubin by the reticulo-endothelial system so rapidly that the normal level of bilirubin in the blood is raised sufficiently to result in staining of the tissues with bile pigment. Recent investigations suggest that jaundice in this disease is not solely due to increased disintegration of red blood cells but depends also on a partial suppression of the ability of the liver cells to excrete bile pigment. This is not caused by any failure of the liver function but is thought to be the result of anoxemia due to the associated anemia. All tests of liver function are normal. Outstanding examples of this type are: Congenital or familial hemolytic jaundice, acquired hemolytic jaundice, pernicious anemia and Banti's disease. As a group, they possess common characteristics which permit fairly easy differentiation from other diseases accompanied by jaundice. Since there is no obstruction to the flow of bile and bilirubin from the liver, the stools are of normal color (sometimes darker from the excessive bilirubin) and there is no bile in the blood or urine. The urine does contain large quantities of urobilinogen which reaches the general circulation by absorption from the intestines. The van den Bergh test gives a positive indirect reaction, whereas in toxic or obstructive jaundice the reaction is biphasic or direct. The difference in the type of reaction has been attributed to the fact that until bilirubin passes through the liver cells, it is of such complex composition that when the diazo-reagent of Ehrlich is added to it, a purplish color does not appear for five minutes. This is spoken of as an indirect reaction, and may be expected in hemolytic jaundice, since the bile pigment present in the blood serum has not been acted on by the polygonal cells. Should the change occur immediately, the reaction is spoken of as a direct reaction, and indicates that the bilirubin has passed through the liver cells, thereby altering its composition so as to produce an immediate reaction when placed in contact with the van den Bergh reagent. The van den Bergh test is used also as a quantitative test for bilirubinaemia. The normal concentration of bilirubin in the blood is expressed as from 0.2 to 0.4 units, whereas 4 units is sufficient to produce jaundice. Repeated tests are of value therefore in determining the progress of the disease condition.

The icterus index is thought by some to be a more accurate quantitative gauge of bilirubinaemia than the van de Bergh reaction, and is employed by us as a routine laboratory procedure in all hospital admissions. It is of no aid, however, in the differentiation between hemolytic and hepatic jaundice, but can serve a useful purpose in the detection of bilirubinaemia when the other clinical symptoms are not pronounced enough to call it to the clinician's attention. Normally, the icterus index is 5 and from 5 to 15 the zone of latent jaundice, i. e. bilirubinaemia without visible skin discoloration. When the reading exceeds 15 the jaundice can easily be detected.

The susceptibility of red blood cells to hemolysis by hypertonic salt solution is known as the fragility test, and when increased is pathognomonic of congenital of acquired hemolytic jaundice. In the normal blood, hemolysis begins in 0.42 per cent salt solution and is complete in 0.30 per cent, whereas in hemolytic jaundice, hemolysis begins in 0.60 to 0.70 per cent, and is complete in 0.35 to 0.40 per cent. The following case reports are illustrative of further clinical data suggestive of hemolytic jaundice. During the course of the disease, individuals suffering from congenital or acquired hemolytic jaundice may have periods of marked exaggeration of all symptoms spoken of as "crises." In case 1, the patient gave a history of having had two such attacks which lasted for about one week, and during which she was only semiconscious, the home physician stating that her pulse was so rapid that he was unable to count it accurately. Her temperature rose as high as 102°.

### CASE REPORT

*Congenital Hemolytic Jaundice*: Miss A. B., aged 17, single, was first seen June 4, 1935, complaining with recurring attacks of jaundice since early childhood. On one previous occasion she had had an attack of fever and extreme prostration lasting for about one week. The family history was negative, with the exception that her father had recurring attacks of jaundice during his lifetime, and she has two aunts who also suffer at times with mild jaundice. She thinks the cause of her father's death was cancer. The past history is otherwise negative.

About six weeks ago patient first suffered with some nausea and vomiting and general lassitude. Several days after these symptoms started she fainted and for one week thereafter was only semi-conscious. Her home physician states that her pulse was so fast during this time that he could not accurately count it, and her fever ranged between 95° F. and 102° F. Since that time, she has had no more fever, but feels very tired and weak all the time. With the beginning of this illness six weeks ago, she noticed that her skin was yellow, which color has become intensified until now it is extremely pronounced. There has been no itching of the skin, and with the exception of the previous "crisis" her general health has been very good. The previous attacks of jaundice did not greatly incapacitate her. She has had no pain at any time. During the past six weeks she has had no appetite at all and has had to force all food that she has taken.

On examination her pulse was found to be 110, temperature 99.6°, blood pressure 100/70. Skin, sclera and mucous membranes were deeply jaundiced. There was some evidence of chronic inflammation of the tonsils, the teeth were good. The heart and lungs were normal. Abdominal examination revealed no detectable enlargement of the liver, and no tenderness in the region of the gallbladder. There was no distention of the abdomen and no rigidity of the muscles. The spleen was greatly enlarged, extending downward to a level with the umbilicus, but was not tender. The feces was normal in color and showed urobilin. Urinalysis showed a negative reaction for bile and bilirubin, with strongly positive urobilin test. The Wassermann test was negative and the van den Bergh reaction was indirect, showing 8 mgm. of bilirubin. The icterus index was 85. Erythrocytes 2,670,000 per cu. m.m.; hemoglobin 47 per cent (7.99 gm.). Reticulocytes averaged 1.5 per cent, and venous coagulation time was four minutes. The fragility test showd a hemolysis beginning at 0.51 per cent and complete at 0.40 per cent. A diagnosis of congenital hemolytic jaundice was made, and 750 c.c. of 5 per cent glucose solution given by slow intravenous drip. On the day following admission, 500 c.c. of citrated blood was given, and this procedure was repeated two days later. On June 8 splenectomy was performed. There were no adhesions of the spleen to the surrounding structures, and the operation was accomplished with the minimum technical difficulty. Exploration of the gallbladder showed that it contained a number of small stones, but the removal of them was deferred until a later time. Her postoperative convalescence was uneventful, and on June 16, twelve days following operation, she was allowed to go home in an ambulance. On this date blood examination showed that the total number of red cells had increased to 3,760,000; the hemoglobin was 63 per cent, icterus index 15, and the van den Bergh 1.5 mgm. bilirubin, indirect reaction. The fragility test remained practically unchanged. August 12, 1935, two months later, the patient returned for gallbladder surgery. Her blood picture was essentially negative, with the exception of the increased fragility of the red cells, and operation was performed the following day. The gallbladder was found to be thickened and white and filled with many small stones. It was noted that there were two cystic ducts which emptied separately into the common bile duct. The appendix was removed prophylactically. Her convalesence following this operation was uneventful and when she reported for observation one month ago she stated that she was in perfect health and had had no symptoms since operation.

### CASE REPORT

*Acquired Hemolytic Jaundice*: Dr. B., aged 60, was seen first May 2, 1931, complaining with fever, jaundice and malaise. His family history was entirely negative and with the exception of an attack of mild jaundice three years ago, his general health had been good and he had been actively engaged in the general practice of medicine. At that time he noted distention of the abdomen with discomfort, but no definite pain. He had no further trouble until April 25, 1931, when he developed temperature 101°, marked abdominal distention and discomfort. These symptoms continued and on April 30 there was slight jaundice, hardly noticeable except in the sclera. There was no nausea or vomiting at any time, and he suffered no pain. He had been conscious of no splenic enlargement at any time. On physical examination, his height was 70.5 inches; weight 150 pounds; pulse 100; blood pressure 140/70. Jaundice was perceptible in the sclera, but was not found in the skin and mucous membranes. The rest of the examination was essentially negative with the exception of the abdomen, where there was quite marked distention with slight tenderness on deep pressure just to the left and below the umbillicus. The liver, spleen and kidneys could not be palpated. No masses were felt in the abdomen and there was no rigidity. Examination of the blood showed a negative Wassermann, 41 per cent hemoglobin (Newcomber), and 1,920,000 erythrocytes per cu. m.m. The icterus index was 15, and the van den Bergh gave an indirect reaction with a value of 6.75 mgm. of bilirubin for 100 c.c. of blood. Examination of the urine was negative for bile but no urobilin test was made. Gastrointestinal roentgen study with administration of gallbladder dye showed no pathology except non-visualization of the gall bladder. During the next three weeks he was given six blood transfusions, together with parenteral administration of glucose solution and his general condition gradually improved, until the distention was practically gone and the red cells per cu. m.m. numbered 3,470,000 with 43 per cent hemoglobin. At operation on May 27, the spleen was found to be about twice normal size, and not attached to any of the surrounding organs. It was removed without technical difficulty, and his condition being good, cholecystectomy was performed for a chronically diseased, thickened gallbladder. Abdominal exploration showed no evidence of other disease. His convalescence following operation was uneventful, and since that time his health has been good. The fragility test, which showed hemolysis beginning at 0.48 per cent and complete at 0.40 per cent before operation, was practically unchanged when he reported for observation several months later. No further blood study has been done, but his color is good and he has had no recurrence of jaundice. He has had no abdominal distention and he has been in active practice since the convalescent period.

The persistence of the increased fragility of the red blood cells would suggest that the cause of the hemolytic jaundice resides in the erythrocytes themselves, and the removal of the spleen therefore does not remove the cause, but simply reduces the total amount of reticulo-endothelial system, and in this way lessens the destruction of red cells. For this reason, it is to be remembered that, although recurrences are extremely rare, they may occur after splenectomy, should the remaining reticulo-endothelial system hypertrophy sufficiently to cause again increased formation of bilirubin.

### II. TOXIC OR INFECTIVE JAUNDICE

Acute catarrhal jaundice.
Toxemia of pregnancy.
Arsenic poisoning
Acute yellow atrophy of the liver
Luetic hepatitis.

Whenever the parenchymal cells of the liver are so damaged by infection or poison as to impair their ability to extract bilirubin from the blood serum, an accumulation of bilirubinaemia occurs, and if of sufficient degree, jaundice ensues. The treatment of this type of jaundice is practically always non-surgical, in contradistinction to obstructive jaundice, which it often resembles, and from which it at times can be differentiated only by extensive investigation and prolonged observation. In addition to the impaired function, there is sufficient edema of the liver cells to produce some degree of congestion in the bile capillaries, with resulting back pressure on the liver cells and reabsorption of bilirubin and bile into the blood serum. The circulation blood, therefore, contains both types of bilirubin, and as a result the van den Bergh test shows an intermediate or biphasic reaction. If the congestion and reabsorption increases with the progress of the disease without a corresponding increase in damage to the liver cells, bilirubin of the type which has passed through the liver cells will predominate and an immediate or direct reaction will occur, thereby increasing the difficulty of differential diagnosis, since a direct reaction is obtained in the obstructive type of jaundice as well. It is important, therefore, to secure repeated readings since a case of catarrhal jaundice may be first seen at its height when the van den Bergh reaction will be direct.

The galactose tolerance test is an indication of the degree of damage in the liver cells as expressed by their inability to metabolize this sugar. Galactose is used since it has no renal threshold such as exists for dextrose and glucose, and all sugar not metabolized by the liver is excreted in the urine within a period of five hours. Shay and Schloss are convinced that a normal liver is capable of utilizing galactose in amounts ranging from 37 to 40 grams. When taken by mouth, it is absorbed by the intestines into the portal vein and carried directly to the liver. If not utilized by the liver, it is returned to the general circulation and excreted by the kidneys. The Benedict quantitative method may be used in determining the amount of galactose present in the entire urine secreted during the five hours following ingestion of the sugar, and the amount excreted with the urine is used as an index of liver damage. If, for instance, 3 grams of galactose are excreted within the five-hour period, the reading will be three, which is the upper limit of normal. Occasionally a high reading will be found in obstructive jaundice, due to the fact that some individuals do not utilize but 37 grams of galactose. These high readings may cause confusion at times, since early in the course of toxic jaundice, damage to the liver cells may have progressed to a point sufficient to prevent the utilization of galactose, and a reading below normal obtained. If the test is repeated at several day intervals, however, until the disease has reached the climax, the readings will be found to exceed three. Shay has never obtained readings above three grams in cases of obstructive jaundice. The feces is normal in color, gradually becoming lighter, depending on the amount of intra-hepatic congestion and the urine contains urobilin and bile.

Pain is usually absent in the toxic type of jaundice, but since it may be absent also in obstructive jaundice from closure of the common duct by stones or extra hepatic growths, this symptom is of relative value only. The following case report is illustrative of the symptoms and clinical course of acute catarrhal jaundice.

### CASE REPORT

*Acute Catarrhal Jaundice*: Mr. W., aged 26, reported April 17, 1934, stating that he was losing strength and weight and had general malaise. The family history was entirely negative, and with the exception of a very severe attack of influenza in 1917, his general health had always been good. About three months ago he began to feel badly and tired, and since that time has continued to have general malaise, lack of appetite, and constipation. About three weeks ago he noticed a muddy discoloration of the skin and during the week preceding April 17, he thought that he could detect a yellow tinge to the eyes. His stools had been of normal color. On physical examination, the temperature was 99; pulse 116; blood pressure 120/75; complexion sallow, with moderate jaundice of the sclera. The tonsils showed chronic inflammation, but the head and neck were otherwise negative. Examination of the heart and lungs were negative also, and there was no distention, or tumors, in the abdomen. The liver was not enlarged, the spleen was not palpable, and there was no tenderness in the region of the gallbladder. The urine was dark in color and contained bile and bilirubin. Blood showed a negative Wassermann test, with direct van den Bergh reaction, and a value of 5 mgm. bilirubin per 100 c.c. The icterus index was 15. The fragility test was negative. Gastrointestinal roentgen ray study showed no evidence of disease, and a normally functioning gallbladder. No gall stones were visible. Gastric analysis showed free hydrochloric acid 30, total acidity 45. Negative for blood. Stool showed no ova or intestinal parasites. The blood showed no anemia and the galactose tolerance test gave a reading of three and one-half.

The direct van den Bergh reaction was attributed to the fact that the disease had been first seen at its height, and consequently several days later, another test was done which showed a biphasic reaction. Treatment, therefore was instituted for catarrhal jaundice. Proceeding on the basis that it is best not to attempt stimulation of diseased parenchyma, he was fed a diet high in carbohydrates and no attempt was made to stimulate the liver cells. Occasional doses of magnesium sulphate were administered to keep the intestinal tract clear and on April 30, 1934 he came for tonsillectomy. The jaundice had disappeared, his appetite and digestion were perfect, and the urine was normal in color. July 17, 1934 he reported stating that he was feeling better than he had in several years, and felt that he was well. The icterus index at that time was 5.

### III. OBSTRUCTIVE JAUNDICE

Common duct stone or new growth.
Stricture of the common duct.
Chronic pancreatitis.
Carcinoma of the pancreas.

Here jaundice is due to reabsorption of bilirubin from the liver and bile as well as bilirubin which is present in the circulating blood in large quantities. Due to the fact that a majority of the bilirubin is of a type that has passed through the liver cells, an immediate direct van den Bergh reaction is obtained. The urine contains bile, but since no bilirubin reaches the intestines to be changed into urobilinogen and reabsorbed into the blood, there is no urobilin in the urinary output. Obstruction of the bile duct from pressure exerted by enlarged glands or malignant growths less often cause pain with fever, and is not often characterized by periods of remission and exacerbation as is the case of obstruction due to stones. Colicky pain is common, and when present is presumptive evidence of a stone in the common duct, as is repeated rigors with steeple-chase type of fever. Due to the presence of bile in the blood and tissues, the patient frequently complains of itching and bradycardia. The following case report is illustrative of this group.

### CASE REPORT

*Stricture of the Common Duct*: Mr. H., aged 37, reported October 13, 1932, complaining of extreme jaundice, weakness and pain in the region of the gallbladder. The family history was negative and he stated that until two years ago his general health was excellent. He had had no serious illness, and no operations. Two years ago he began having pain below the shoulder blades and has continued to have some discomfort in this region ever since. Six weeks ago he became nauseated, vomited and felt extremely badly. He did not know whether or not he had fever. Two days later he began to "turn yellow" and was unable to eat. The discoloration of the skin, sclera and mucous membranes continued until he was almost bronze colored, and he stated that his stools had been white. There had been no severe pain, however, at any time and he had had no rigors. Examination showed a badly jaundiced individual, weight 147 pounds, height 68 inches, temperature 98°, pulse 62, blood pressure 125/80. With the exception of marked jaundice, examination of the head, neck and chest was negative. Examination of the abdomen revealed an enlarged liver, extending half-way up to the umbilicus. The spleen was not enlarged, and there was no marked tenderness. The clinical examination was otherwise negative. A roentgenologic report of the chest revealed no disease, and a plate of the kidney and bladder areas was negative for calculi. The gallbladder region showed no evidence of stones, but it was thought that a faint shadow corresponding with the outline of the gallbladder could be demonstrated. Gastrointestinal roentgen ray study was essentially negative, and gastric analysis was normal. The blood showed 3,720,000 erythrocytes per cu. m.m., with 56 per cent hemoglobin, a negative Wassermann and Kline test. Blood sugar was 100 mgm.; urea nitrogen 16 mgm., creatinine 1.5 mgm. The van den Bergh showed a direct reaction with 5 mgm. of bilirubin. The icterus index was 70, The stool showed no urobilin, and the urine was strongly positive for bile. No urobilin test was done on the urine. A diagnosis of obstructive jaundice, probably due to extrinsic pressure was made. On January 2, 1933, he was admitted to the hospital, and the usual preoperative preparation for jaundice cases instituted. This consisted in his case of intravenous administration of glucose solution, blood transfusions, and the administration of calcium chloride by vein. On January 4 an exploration of the abdomen revealed the gallbladder greatly distended and complete obstruction of the common duct, due to a simple stricture. There was very little evidence of disease in the gallbladder walls, and with the exception of slight enlargement of the pancreas, the rest of the abdominal cavity was negative. Cholecystogastrostomy was performed, and his postoperative convalescence was uneventful. There was no evidence of infection in the operative wound, and he was allowed to return home January 14, by ambulance. Three days later, while lying in bed, he sneezed and complete disruption of the wound occurred. Immediate closure was accomplished by through and through silkworm gut stitches, and a blood transfusion given. There resulted no infection, and his convalescence was uncomplicated. He remained in bed for one month, and no hernia resulted. August 23, 1933 he reported that he had a good appetite, his bowels were regular, and it was noted that there was no evidence of jaundice. The urine was normal in color. The liver extended one finger's breadth below the costal margin, and he reported that his stools were normal in color.

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### DISCUSSION

Dr. Foster M. Johns (New Orleans): The differential diagnosis rests very frequently on laboratory work, and a great deal depends on the continued examination of various laboratory materials over considerable periods of time. Frequently, the examination of the blood will reveal evidence of hemolytic jaundice not shown in the ordinary tests or the icterus index or van den Bergh test. Hemolytic jaundice will depend on the presence of anemia.

The balance of the blood rests between the active production of blood and the destruction of blood by the spleen. Under normal conditions red cells are produced approximately of equal size and shape. In hemolytic jaundice the spleen which ordinarily takes charge of the destruction of red blood cells is more thickened than under normal conditions, and there is rather active destruction of blood. Surgical removal of the spleen will allow the cells to circulate a few days longer and produce some alleviation or palliation of the symptoms.

After the surgical removal of the spleen the individual cells last a few days longer than before and the total number of cells is increased to a considerable extent. The average case after splenectomy will have sufficient blood to carry on active function. The crisis is averted and the usual run of the case is to have periods of recrudescence, during which time the patient is apparently normal. Subsequently the patient may have a relapse of the condition to some extent.

Dr. L. A. Hebert (Lake Charles): There is very little that may be added to the already voluminous discussion in this matter. However, I wish to call your attention to the occasional variations one may find in close study of blood cells in these individuals. The studies may vary from time to time. There is one test, however, on which we may rely to give us valuable information in the diagnosis of hemolytic jaundice, and that is the fragility test. That probably is the most reliable we have.

Dr. W. R. Mathews (Shreveport): There are many similarities in the spleens of familial hemolytic jaundice and sickle cell anemia, and so far as I know the course of the two is very different. Recently, I have had a case of anemia in a colored child 7 years of age who had a spleen that was palpable, quite a marked anemia, 1,500,000 red cells, and was diagnosed on the increased fragility of the red cells to hypotonic salt solution. The spleen was removed and we kept the child in the hospital under observation until the red cell count was up to 4,500,000—the exact time I cannot state. I had a great deal of trouble convincing myself that slides from this spleen were not identical with slides from sickle cell anemia. As a matter of fact, if the slides were mixed up, with no numbers, I could not differentiate them. I want to know if anyone observed familial jaundice atrophy of the spleen.

Dr. Robert Kapsinow (Lafayette): The following is a preliminary report of a study on the subject of congenital familial jaundice, the patient giving all the clinical findings of the disease as well as a family history for four generations. This patient refused splenectomy and submitted instead to this study. He has been followed for four months. Red blood counts icteric index and fragility tests were made every three days, and gave data from which these remarks follow.

There appears to be a periodic rise and fall of the red cells which roughly occurs every two weeks. As the red cell count falls, there is an increase in the icteric index and a gradual increase in the resistance of the red cells to hypotonic saline. After the low point has been reached, which in this case was about 2,000,000 red blood cells, a rise occurs in the erythrocyte count with a corresponding fall in the icteric index and a slow but definite decrease in the resistance to hypotonic saline.

There is no apparent dietary relationship to this ebb and fall but there is sufficient reason to believe that it is affected by the ingestion of large quantities of water or salt. As yet no sodium chloride or blood solid determinations have been made.

The van den Bergh test is not as specific as it was originally thought. Many years ago, I found that I could get all the various reactions with sodium bilirubinate if I varied the concentration used. The icteric index described by DeWitt Stetten will give just as definite information as was claimed for the van den Bergh reaction.

# INDUCED OR ARTIFICIAL FEVER*

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Mott, in a lecture on "Mind and Body," stated that the reason why fatal syphilis of the nervous system is more common among civilized people was due to the fact that treatment by mercury causes the organism to seek the central nervous system, where it was protected from the effects of the drug.

In opposition to this belief, Hutchinson stated that he rarely saw any sequela in patients suffering with syphilis who had had a two years' course of mercury.

It was reported by me in a paper read before the American Medical Association in Detroit September, 1930, that clinical observation had suggested that too vigorous a chemical therapy in cases of dementia paralytica appeared harmful in some patients. My conclusion was and still is that too energetically used, chemicals are definitely contraindicated in the treatment of late nervous syphilis.

Today the enthusiasm for foreign protein therapy has developed to the point where not only is it used in the treatment of dementia paralytica, but also extensively employed in the treatment of tabes dorsalis, and other pathological states.

In 1917 Wagner von Jauregg of Vienna first inoculated paretics with malaria. Ten years later he was awarded the Nobel prize in medicine in recognition of his contribution to the treatment of this disease.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

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The subject of resistance, artificially produced through protein reactions, is one which will more and more come to the front. The streptococcus of erysipelas appears to have a retarding and occasionally a curative influence on the growth of some sarcomata. A case has been recorded in which an attack of acute erysipelas completely removed a long standing dropsical effusion due to chronic nephritis.

Antagonisms are rarer than partnerships, and perhaps the best known is that of the malarial parasite to the spirochete of syphilis. The immunity of the syphilitic negroes of the Congo from cerebral syphilis has been remarked by French observers.

Today it seems that a greater number of younger patients are presenting the serological and clinical findings of paresis. Formally, and especially before the advent of intravenous arsenical therapy, the paretic was usually a person in his late forties or fifties. It is a very interesting conjecture as to whether this is due to a more virulent syphilitic organism or to the more complex problem of adjusting socially and economically, thereby creating a lower general resistance to the disease. Might it not be the result of too energetic and unintelligent employment of intravenous therapy with chemicals? When one visualizes the pathology of cerebral syphilis, it does seem reasonable to feel that arsenic, mercury and iodides are capable of a great deal of destruction in the central nervous system to these highly diseased tissues.

In an analysis of the case records of twenty-eight patients in the De Paul Sanitarium inoculated by me with malaria in the treatment of dementia paralytica, it was noted that the patients who did badly and in whom the therapeutic results were poor were those who had been too energetically treated chemically before the introduction of the malarial plasmodia.

O. L. Nelson employed diathermy for the elevation of temperature in the treatment of eleven neurosyphilitics of the tabetic type. It appeared that in five of the eleven patients so treated that there was a diminution in the tabetic pains. It required one and a quarter hours for the temperature of the patient to be raised 104 degrees F. This temperature was maintained from one to two hours, depending upon the reaction of the patient to the temperature. Two to three treatments were given each week, and before the second treatment the author gave 10 c. c. of a soluble iodine intravenously, and for the third treatment the patient received bismuth. Eight to ten such fever treatments constituted a series.

It is stated by Dr. Nelson that there are few contraindications for the employment of diathermy in paresis. Only a severe myocardial degeneration was felt to be a definite reason for not using this therapy. He concluded that malaria therapy was superior to diathermy in the treatment of dementia paralytica.

The tabetic patient responded poorly to malaria therapy and that it was a painful procedure and should not be employed.

The benefits derived from the use of diathermy in a tabetic patient is due to a local, active, deep seated hyperemia, producing tissue drainage, and influx of arterial blood and an increase in the leukocytes of which the phagocytes play some part.

It was found that in these cases so treated with diathermy that the serology did not parallel the subjective improvement. Regular antiluetic treatment was given along with the diathermy.

Solomon and Epstein concluded that in 173 patients suffering with dementia paralytica who were inoculated with malaria between February 1925 and February 1931 and who received other treatment as well found that improvement from the clinical standpoint was obtained in 36.4 per cent and a definite improvement was obtained in an additional 27.1 per cent.

Serological results in 169 of these patients who were subsequently studied from the standpoint of their spinal fluid findings showed a normal spinal fluid in 36.7 per cent; a greatly improved spinal fluid in 20.7 per cent and a somewhat improved fluid in 18.3 per cent. They state that the best method of treating patients with dementia paralytica cannot be determined at the present time. They employed treatment consisting of injection of drugs; tryparsamide, arsphenamine, bismuth, mercury and iodides. They also used in their patients suffering with paresis fever induced by the virus of rat-bite fever, injection of typhoid vaccine, milk and diathermy. It is their impression that a combination of methods with malarial therapy give the more satisfactory results than treatments with malaria alone.

There are unquestionably contraindications to sustain high temperatures in the treatment of cerebral-syphilis: old age, myocardial or renal insufficiency, demented phase of dementia paralytica, active tuberculosis and arterial hypertension.

Hot air, hot cabinets, hot water, hot plates, hot blankets, hot baths, be it conducted heat, convective heat or conversive heat, be it diathermy, radiothermy, hyperthermy or pyretothermy. The question is: Will all or each of these methods produce clinical results? From the literature it does appear that each of these methods if adequately induced, properly controlled, hyperpyrexia treatments will lead to a certain measure of therapeutic success in selected cases of paresis.

### CONCLUSIONS

Induced or artificial fever is of definite value in the treatment of dementia paralytica. It does appear that the best clinical results are obtained in the employment of malaria. Apparently the foreign protein element plays a large part in the benefits derived from this type of therapy. Those cases treated only with elevated temperatures do not appear to respond as well clinically. The physiological changes during the hyperplexia cannot account for the treponemicidal action of the fever.

All of the spirochetes of syphilis are not destroyed by elevated temperatures, since those in the deep tissues, especially the lymph glands become heat and chemo-resistant.

It is therefore desirable that pyretotherapy be combined with the arsenicals and heavy metals. As stated, there are definite contraindications for the use of temperature elevation therapeutically used. Artificial or induced fever is not a panacea in the treatment of syphilis of the central nervous system.

### DISCUSSION

Dr. W. S. Kerlin (Shreveport): In discussing the title of this paper, I believe I can better approach the subject by reporting, as briefly as possible, a case I saw in consultation several years past:

A case of paresis that would not respond to the usual plan of treatment after having been hospitalized for a considerable length of time on account of severe mental symptoms. Shortly thereafter he was again admitted to the hospital with mental deterioration and a severe bloody dysentery. During this period, consisting of five months duration, his life, on numerous occasions, was despaired of, due to the uncontrollable dysentery. For a considerable length of time his temperature fluctuated between 100 and 105 degrees. The dysentery finally subsided and he slowly improved, both physically and mentally. Previous to this illness his spinal fluid Wassermann had remained four plus in spite of intensive antileutic treatment. At the time of discharge he was normal mentally and his spinal fluid showed a one plus reaction. He has remained clinically cured for the past seven years and his treatment has consisted of periodic courses of tryparsamide. Recently the spinal fluid still showed a one plus reaction.

Dr. C. S. Holbrook (New Orleans): Dr. Unsworth was good enough to ask me to discuss his paper, and I wanted to do so anyway. I am decidedly of the opinion that inadequate treatment of the early stages of syphilis is responsible for involvement of the central nervous system later; and, as has been observed, people who develop syphilis of the central nervous system usually have mild primary and secondary lesions. It is felt that the organisms which have a predilection for the nervous system are prone to attack the mucous membranes lightly and often respond readily to treatment; thus, shortly after treatment is commenced the patient feels well and therapeutic measures are not continued. I think that all syphilitics some time in the course of treatment should have a spinal fluid examination. Today, with the laboratory facilities that are available, a patient is improperly treated unless a spinal fluid examination is made; but should the patient decline to permit a spinal puncture, our clinical notes should contain the fact.

The prognosis for patients with paresis has greatly improved. Fifteen or twenty years ago when paretics came to an institution—and, by the way, they constituted fifteen to twenty per cent of all new patients in mental hospitals—we felt that a patient would not be there very long. They all died within three years, and those treated with salvarsan or mercury died a little sooner, so the men doing this work became very pessimistic about treatment of paretics. It was just such observations as Dr. Kerlin mentioned that led to fever treatment. Paretics are apt to develop other illnesses, and as it was observed they did better after this intercurrent disease, this led to the search for a better method of producing fever.

The end of the story has not been told. Personally, I am very firm in the opinion that malarial hyperpyrexia is better than any other type fever treatment we have. I am inclined to think that tryparsamide should be used extensively in paretics. Lorenz of Madison, Wisconsin, reports just as satisfactory results with tryparasamide as is brought about with hyperpyrexia, but it is my opinion that the two methods, hyperpyrexia and tryparsamide, should be employed conjointly. Salvarsan, neosalvarsan, and the heavy metals are useless—certainly they were useless before we had the newer methods, and by themselves are useless now. I think treatment should be hyperpyrexia and tryparsamide. The indication for artificial fever is clear cut and proper only for paretics and not for cerebrospinal syphilis where the grey matter is not involved by spirochetes.

At present, with proper treatment about thirty-three per cent of the paretics can be restored to their former efficiency—we do not speak of them as being cured—and can go back to the same job with the same economic efficiency. Another thirty-three per cent can be improved, being able to live outside an institution, and some of these will be able to work. The remaining thirty-three per cent grow worse or die. This is in marked contrast to the prognosis a few years ago when all these patients died within a comparatively short time. Now about sixty-six per cent are markedly improved or are clinically restored. We must consider these patients as deserving our best efforts.

Dr. Roland Young (Covington): I want to compliment the essayist on his paper. I know that he has given thought to this subject for some length of time and he follows the present trends of thought on this subject which are up to date.

The difference of question between him and Doctor Holbrook are fairly well understood by me. However, I feel pretty much as Doctor Holbrook does in regard to tryparsamide and fever therapy. I noticed the paper was on induced fever therapy. I noticed the paper was on induced fever in reference to disease, in particular to paresis. I feel in that connection our general practitioner might be interested a little bit along the lines that we specialists are. What we are doing is in a sense harnessing nature. Chorea and rheumatic disease respond to triple typhoid induction especially the former.

I want to say a few words in regard to the main types of inducing fever, malaria, triple typhoid, diathermy—by the inductotherm or oscillotherm—and Kettering hypertherm now used today. Of the machinal means for simplicity the inductotherm is very good. The Pennsylvania Institute for mental diseases showed while I was there in '34 malaria fever proved best in paresis. In my opinion, a rather effective way of administering hyperpyrexia even in paresis is by the triple typhoid vaccine injection intravenously. I use two injections three to four hours apart in order to get high and sustained temperature and sometimes will precede the intravenous doses by a period of about twelve hours by a subcutaneous injection. As a last word, it is a question with some of our men in this line and I quote now as I heard Doctor Israel Strauss at Mount Sinai in New York City state this past Fall that some of us regard triple typhoid injections properly given as perhaps just as good as our malarial therapy.

Dr. H. R. Unsworth (In Conclusion): I wish to thank the doctors for their discussion.

With reference to typhoid intravenously, I have had no experience.

# PHYSICAL THERAPY IN THE CHRONIC RHEUMATIC DISEASES*

JOHN S. COULTER, M. D.†
CHICAGO

Chronic rheumatism or chronic arthritis is not a disease of certain joints, but rather a systemic illness in which there may be disturbances of the circulation, general metabolism and the gastrointestinal system. It includes the syndromes of nerve, muscle and joint affections called neuritis, myositis fascitis or arthritis according to the parts affected. The object of this paper is to illustrate certain important principles of the use of physical agents as adjuncts in the treatment of this disease, which causes so much suffering and economic loss to the persons affected.

The importance of the use of physical agents is shown in an analysis of fifty hospitalized cases in the Mayo Clinic. Although the average duration of illness was 5.7 years on admission, only sixteen of the fifty patients had been advised by their regular physicians to use massage; only eight had been given exercises; and only four had been given supervised applications of heat for a period longer than two months. Half of the group, however, had gone to spas or other resorts where physical therapy was used. Physical agents should only be used as adjuncts to other forms of treatment. Under direct observation by the capillary microscope, the capillaries of patients suffering from chronic arthritis show a markedly diminished peripheral blood flow. The main therapeutic value of the physical agents used in treatment of this disease is their ability to increase blood flow.

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*Read before Orleans Parish Medical Society, March 23, 1936.

†From the Department of Physical Therapy, Northwestern University Medical School, Chicago.

Physical agents should be prescribed definitely by the physician. They should be used by the physician in his office or in the hospital, but since the purpose is to increase circulation, it seems definitely indicated that some of these agents should be applied at frequent intervals during the day. In our clinic the patient, the nurse or some member of the family is instructed in the use of physical therapy in the hospital room or the home. If, in the case of ambulatory patients, the physician will supplement office treatment with home treatment, he can secure for these patients practically the same result as would be achieved by hospitalization, resulting in a considerable reduction in the cost of medical care for the patient.

### HEAT

Heat, applied both systemically and locally, has its most extensive and varied application in the treatment of chronic arthritis. Heat is applied locally over an arthritic joint to increase the local circulation. It has been shown that the quantity and quality of this heat must be prescribed by the physician.

The metabolism of the tissue cells is affected by the temperature of the tissues. The normal exchange between the blood and the tissues in the capillaries is such that the arterial end of the capillary contains 95 per cent oxygen and the venous end 70 per cent. This saturation of oxygen depends on the rate of exchange between the tissue cells and the blood flowing through the capillaries. When heat is applied so that the temperature is moderately increased to 102° F. the rate of blood flow through the capillaries is increased, tissue metabolism is accelerated and the rate of exchange between the blood and the tissues is increased so that the blood entering the vein contains only 60 per cent of oxygen. Above 102° F. the rate of blood flow is so rapid that the metabolism of the tissue cells is decreased so that the blood entering the vein simulates arterial blood and contains 91 per cent of its saturated value of oxygen.

These facts are clinically important. In a case of chronic arthritis of the ankle with a circulatory disturbance of the same leg which caused an interference with normal tissue metabolism, the patient was directed to put his leg in an extremely hot bath for twenty minutes. This caused a great increase in his pain that lasted for hours after each bath. With heat applied by an electric lamp baker so that the temperature at the ankle was 98° F. the pain decreased. The kind of heat prescribed must be determined from a consideration of the penetration desired. In the local use of radiant energy it has been shown that the radiation from an incandescent lamp, using maximum skin tolerance as a gage of intensity, caused the subdermal temperature at a depth of 0.5 cm. to rise to 47.7° C., while with far infra-red radiation from an infra-red generator at the same depth the temperature attained was 41.7° C.

Another commonly used method for applying local heat is by medical diathermy. It is believed that short wave medical diathermy is the most convenient method for its application. At Northwestern University Medical School, the temperature of the skin, of the subcutaneous tissue, and of the quadriceps extensor muscle in thirty-five human subjects was measured by a thermocouple in conjunction with a potentiometer before and after twenty minute clinical applications of short wave medical diathermy. In these tests it was found that the electromagnetic field, or electromagnetic induction, was the most effective in its ability to heat the deep tissues of the human thigh.

If medical diathermy is used in chronic arthritis, it should be used for a short period and of low intensity for the first few doses, for at times medical diathermy in arthritis causes an aggravation of the local symptoms. This usually happens in cases with active foci of infection. It has been observed to be of benefit from a clinical viewpoint so often that we always give it a trial. We use short wave medical diathermy in the form of electromagnetic induction daily or every other day for twenty minute periods at an intensity determined by the patient's tolerance. The first doses are always half time and half intensity and some form of heat is applied at home two to four times a day. In addition to the local heat, the application of heat systemically is of value for the increased circulation and metabolism induced. These effects are increased if following the general "bake" a Scotch douche is given.

### HYDROTHERAPY

In the use of water in the treatment of arthritis the Scotch douche or cold shower after a bake furnishes a "metabolic and circulatory whip" if properly used. Where the proper apparatus is not available, a sheet bath is a valuable substitute. For home use again the patient should be given definite instructions for its use. For the generalized application of heat the hot bath may also be used at home.

For local applications of heat by water, a whirlpool bath is often valuable. The whirling of the water under pressure and the air intake enables the water temperature to be increased to 115° or 120° F. The rapidily moving water and air bubbles also give an efficient form of gentle massage. Joint motion that could not otherwise be tolerated may be given while in the bath. Contrast baths using hot water followed by cold are not used, as it has been noted by direct observation of the capillaries through the microscope that the capillary circulation is not increased by contrast baths as efficiently as with hot baths.

### HYPERPYREXIA

In our clinic in the treatment of selected cases of atrophic arthritis we use hyperpyrexia by physical agents. We have proved by observation of the peripheral circulation with the capillary microscope that the maximum circulatory increase is with a temperature of 104° F. Therefore we give a temperature of 104° F. for four hours. We have also found by observation of many cases that if we use short wave diathermy by electromagnetic induction to raise body temperature that the pulse rate is lower than by other physical methods.

### MASSAGE

The effect of massage in arthritis is to open vascular channels and increase the circulation. If this is so and there is a deficient circulation to these joints, it must follow that massage must be given at frequent intervals. For this reason we have our patients bring in some interested member of the family for instruction in the use of massage at home, as it is useless to give massage three times a week and no more. Every physician should be able to prescribe massage as he would drugs for it is dangerous to turn a patient with arthritis over to a technician with only directions to give massage. Heavy massage over an arthritic joint may cause a marked local reaction. An arthritic case should have gentle kneading massage above and below the affected joint and no massage over an acute joint. When the joint becomes subacute, superficial stroking massage may be started over the joint in addition to the kneading massage above and below the joint. This should be preceded by at least fifteen minutes of heat. Massage should be given for about ten minutes twice daily. The details of the technic of massage are given in the Handbook of Physical Therapy, American Medical Association.

Associated with massage, electrical muscle stimulation of the graduated contraction variety is of great use. In graduated muscle contractions produced by electrical stimulation the good results are due to the direct stimulations of the muscles causing physiological contractions with all the natural changes dependent on such contractions and the mechanical effects due to the direct movement of the joint.

### EXERCISE

This program is always started with a careful explanation of, and a prescription for, body mechanic exercises, because it is believed that a most important part of the treatment is to remove mechanical handicaps and to maintain the best possible body mechanics. It has been noted that atrophic arthritis is much more common in the young and thin person with weak muscles, narrowed thoracic cages, with poor diaphragmatic excursion, with sagging abdominal viscera and with the weight bearing lines of their joints out of line. They are fatigued. Their posture (body mechanics) is poor. If these conditions can be changed by postural rest periods, body mechanic exercises and temporary supports, more room is provided in the thorax for heart and lung action, the diaphragmatic pump is set working again on the abdominal veins, the sagging of the abdominal viscera is relieved, and the normal weight bearing lines are restored to the painful joints. This causes a higher circulatory coefficient, more nearly normal alimentation and less fatigue. Hence the defense mehanisms of the body are given a better chance to overcome whatever bacterial or chemical toxins are being elaborated, which presumably are responsible for the pain in the joints.

In hypertrophic arthritis, the same principles of improving faulty body mechanics obtain. With its older age incidence, the remodeling of the body is harder, but, fortunately there is usually less remodeling to be done.

The time taken in explanation of the objects of this program is necessary as the patient's cooperation is absolutely essential. The patient and some interested member of the family are instructed in the use of the body mechanic exercises. The instructions are on mimeographed sheets. These exercises are based on the development of a firm flat lower abdomen. The position desired is standing so that the weight falls well forward on the outer borders of the feet, the lower abdomen pulled in and up, the back flat, the head up and chin in. The body should be stretched tall, without being rigid, the shoulders and chest will then fall into their own balance line. The physician should direct the patient carefully and check over the performance of these exercises every week, adding new ones and leaving off the easier ones as the patient improves.

For local joint conditions during the acute stage, deformity must be prevented by rest in proper supports, but painless active motion is encouraged. These joints should never be manipulated by passive exercise for swelling interferes with the circulation which is already poor and trauma is done the diseased tissues. During the subacute stage there are several forms of exercise that eliminate the weight of the extremity as a hindrance during movement and are helpful in allowing the patient to translate even minimal muscle power into active motion. In Gaenslen's sling suspension method the patient can exercise frequently for brief periods in the painfree range. With a home made tank in the average home the buoyancy of the water eliminates gravity and the warmth of the water relaxes the muscles and accelerates the blood flow.

After the acute and subacute stages have passed, free and resistive exercises are given on prescription by the physician. There should be a mimeographed sheet of exercises for each joint by which the physician can indicate the exercises to be used. The best results in the restoration of function in stiff joints following chronic arthritis is not from manipulation but by the gradual use of these joints by directed exercise and occupational therapy. In certain cases exercise apparatus is useful. Directions may be obtained from the author for the construction of stall bars for arm and leg exercises, a shoulder abduction ladder, a Kanavel hand table and stairs with rails for stair climbing exercise. Rest and exercise are essential to the function of a joint. Motion should be encouraged in all stages of the disease but this motion should be well within the fatigue limit. Exercise for a single joint is monotonous. The human body is more than a machine and the formal repetition of a movement either with or without an apparatus is not of maximum value in increasing the amount of movement in a stiff joint. There is not the psychological stimulant for personal incentive or sustained effort as in occupational therapy. Exercise given by an occupation with a definite object makes the patient forget the exercise because he is thinking of the task to be finished. This work must be directed definitely to exercise the part desired.

### REST

Rest is an important physicial agent in the treatment of arthritis for chronic fatigue is one of the symptoms of this disease. The physical signs of fatigue are also present such as subnormal morning temperature, poor pulse, vasomotor instability, low blood pressure, low metabolism and poor muscle tone. It is believed that this fatigue is due to disturbances of the normal physiology of the organs of the thorax and abdomen with effects on the circulation and sympathetic nervous system.

Rest should be prescribed with as much discrimination as any drug. Usually the rest should be in bed for certain periods daily or continuously. At first after each meal a pillow is placed under the shoulders, the hands are placed under the head, and a pillow is placed under the knees. This raises the chest and abdomen, hyperextends the dorsal spine, flattens the lumbar spine, and results in abdominal breathing with better use of the diaphragm.

After a half hour the face prone position is taken and radiant heat is applied to the spine to stimulate spinal circulation. These periods are given after meals whether the patient is in bed continuously or ambulatory. If continuously in bed these periods are continued until exercises and proper supports enable the patient to continue this correct position when up. They are then allowed up for increasing periods.

Rest is also an important agent in the local treatment of the affected joints. Rest and exercise are most important in the function of a joint. This rest should be in a position that is the best adopted to prevent strain or contracture, thus preventing deformities. The prescription of local rest illustrates the necessity of having the co-operation of an orthopedic surgeon in the treatment of chronic arthritis with physical therapy.

### CONCLUSIONS

In chronic arthritis sufficient time for adequate treatment is fundamental and physical therapy is an important adjunct in treatment. Physical agents can be used by any physician, but to secure the best results, they must be carefully prescribed by the physician and used under his directions not only in the hospital and office but for longer periods at home by the patient assisted by some member of the family.

### DISCUSSION

Dr. John H. Musser (New Orleans): After this very full and complete dissertation of Dr. Coulter on the treatment of arthritis, it hardly seems possible that I can add anything, and I do not think it is possible that I will add anything, but there are several things that I would like to comment on very briefly in the management of patients with arthritis.

In the first place, I would like you to bear in mind that we do not really know what arthritis is. We know something about the small twigs, the small branches of the disease, but when we come to the trunk our knowledge is nil. That does not alter the fact, however, that there are certain measures which can be employed and have been employed successfully in the cure of the disease, and while a good deal of this work is empirical, nevertheless, from what Dr. Coulter has shown you tonight, the basis for the treatment by physical therapy is reasonably well substantiated and proved. You recollect that the treatment of arthritis by physical means has been employed for an untold number of centuries and that the old Romans used heat as can be proved by the magnificent baths and bathing establishments that exist from the old times and which still remain in such places as Aix-les-Bains.

In the scientific management of these patients, I think it is perfectly safe to say that that particular method began with Krogh, to quote Dr. Coulter, when Krogh showed the capillary body is a mass of small channels which under ordinary circumstances are closed, but under certain stimuli they may be opened, then began the scientific management of arthritis by these methods.

Heat is of undoubted value and for the reasons Dr. Coulter mentioned. Heat opens this capillary bed and as a result there is increased circulation, increased corpuscular flow to the sick part, and increased possibility of the waste products being more efficiently removed. I have always looked upon heat as one of the features which should be employed prior to giving massage. I would like to ask Dr. Coulter if I am correct in that? Krogh has shown further that stroking massage of the part will also open the capillary bed somewhat, and give the same results as heat, so I am rather of the opinion it is better to begin with heat and then follow with massage, and as Dr. Coulter said, if you want to get results it cannot be obtained by making use of massage for an hour three times a week. It has necessarily to be repeated during the course of the day, not once, but even twice or three times.

The other methods employed in the treatment of arthritis such as exercise, posture exercises, rest, are of course of extreme importance. It so happened that at one time I was in close contact with Dr. Pemberton and his work; I was assistant at the Presbyterian Hospital where he was chief. A very large number of patients came there. Occasionally, I would pick up a patient in more or less reflected glory. Pemberton used to show his cases at the staff meetings. I remember a definite statement that he made was that physical therapy was a most important measure in the management at least of the early cases of arthritis, and I can assure you that the directions we gave to the patients at the Presbyterian Hospital at times looked like more or less rigmarole. These patients had visited the clinics, the spas, and the hospitals; they had been all over and without definite positive results, and sometimes they looked absolutely hopeless, but with painstaking attention to detail and with the methods that Dr. Coulter has described to you tonight more fully than were practiced at the Presbyterian Hospital, I can assure you that the benefit and improvement of these patients was sometimes almost a miracle.

Dr. John S. Coulter (In conclusion): I do not think I have anything more to say except to answer Dr. Musser. We always use heat before we use massage, and our superficial massage is one of the most important things we do in massage. It is one of the easiest to teach and sometimes one of the hardest to give. Avoid Swedish massage.

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## EXTENSION GRADUATE TEACHING IN LOUISIANA

It is a pleasure to be able to report that the Committee on Medical Education of the Louisiana State Medical Society has prepared a program for obstetrical teaching throughout the State of Louisiana. The Committee is to be congratulated on their prompt action in organizing graduate teaching in our State.

The first extension teaching, which will be in obstetrics, has been made possible through the cooperation of the Louisiana State Board of Health and the Committee on Maternal Welfare. It must be understood that this teaching is entirely a State Medical Society project. The plan is to meet for five evenings in one or another of the cities in Louisiana. A review lecture will first be given by the obstetrician in charge of the course which will then be followed by motion picture demonstrations, general discussion and conference.

This extension graduate teaching is a very real contribution by the State Society to its members and should prove of inestimable value. It is hoped that, once organized, it will continue indefinitely.

Not only should the members of the several committees, the President of the State Society and the Louisiana State Board of Health be commended, but a word of praise should be given the men who, at considerable personal sacrifice, are going to conduct the extension teaching.

## THE NEW CHARITY HOSPITAL

The securing of a liberal grant from the United States Government plus the money voted by the last legislature will make possible the reconstruction of the Charity Hospital. The plans for this new plant, which have been appearing in the newspapers of recent date, indicate that an extremely high class, modern hospital is to be constructed. In this new hospital every facility will be provided for the adequate care of the sick. Not only will the hospital provide for the sick and injured but also facilities will be afforded for the instruction of medical students and medical graduates, an extremely important function of a really good hospital.

The appointment of Dr. George S. Bel as Director of medical activities of the Charity Hospital will insure the doing of a splendid job. The hospital authorities are particularly fortunate in that they have been able to obtain the services of this outstanding Louisiana doctor. On his broad and capable shoulders will be thrown a tremendous amount of work; multitudinous arrangements will be necessary to bring about the rapid construction of the new buildings, innumerable details will have to be guided by a strong hand, and questions of policy will have to be decided by a strong personality.

## MEETING OF THE PUBLIC HEALTH ASSOCIATION

Another large great medical organization will hold its meeting in New Orleans. This time it is the American Public Health Association whose sixty-fifth annual convocation will be held in New Orleans October 20-23. On the program of this outstanding meeting more than one hundred scientific sessions are listed with nearly three hundred speakers. Some of these are highly specialized programs ranging in the field of public health from sanitary engineering to epidemiology, from child hygiene to laboratory practice. The general sessions will deal with such important health measures as diphtheria immunization, mental hygiene and mosquito borne diseases. Particularly to be emphasized is the symposium on syphilis with four outstanding physicians taking part and including the Surgeon General of the United States Public Health Association, Dr. Thomas Parran.

A very large attendance is anticipated at this meeting. More than two thousand attendants are expected to register from every state in the Union, from Canada, Cuba and Mexico. These statements will indicate just how valuable this meeting will be and what a splendid optortunity it will give the doctors of Louisiana to take advantage of this which may truthfully be called a Pan-American assembly.

## POOR TECHNIC

The recent announcement in the lay press of a drug which is presumed to cure arthritis, has received extensive publicity very generally throughout the country. The account of this new drug was introduced at the meeting of probably the largest national chemical society in the country. Undoubtedly the primary reason for the acceptance of this paper had to do with the chemical structure of the preparation, but unfortunately, in so far as can be judged from the press, the chief feature of the presentation had to do with the marvelous (?) results obtained in patients who had arthritis when this drug was administered to them. Very prompt exception was taken by the officials of the American Medical Association to the apparent endorsement of this drug by a reputable society. The preparation had not had adequate clinical control. It had never been submitted to the Council on Pharmacy and Chemistry of the A. M. A. nor were the specifications laid down by the Council before recognizing a drug, and which are undoubtedly fair and perfectly just, adhered to.

Criticism is sometimes made of the American Medical Association that when new drugs are introduced that this society of medical men has adopted a policy which is procrastinating and which delays for years the opportunity of the sick individual to obtain something in the pharmaceutical line that is new and of value. This criticism is not valid. It is only by careful clinical study of new drugs and medicinal preparations that it is possible to evaluate their worth. This cannot be done in a day, a month or a year.

An effort is not being made to stand up for the Council on Pharmacy and Chemistry of the A. M. A. Its accomplishments speak for themselves, but it is felt that an entirely wrong technic was used in attempting to introduce a new drug through decidedly round about channels. This possibility of presenting to the general public new drugs through reputable and high standing organizations is a new approach to something which smacks very closely of charlatanism. It is rather remarkable that the great organization before which announcement was made of this preparation for arthritis, should sponsor something which is decidedly within the realm and jurisdiction of medicine, which is well qualified to take care of such matters.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

## J. T. NIX CLINIC
New Orleans

At a meeting held in September the following paper was presented by Doctors L. A. Fortier and T. T. Gately.

### X-RAYS IN CHRONIC APPENDICITIS

In acute appendicitis, the use of roentgen ray examination is unnecessary and may even, by the loss of valuable time and ingestion of foreign material in the intestinal tract, prove dangerous to the patient. About the only roentgen ray procedure justifiable in acute cases would be a radiograph of the urinary tract to exclude urinary calculi. In chronic and subacute cases, roentgenographic and roentgenoscopic examinations will elicit a great deal of information distinctly valuable to the patient and to the surgeon.

Our method of choice is the examination of the entire gastrointestinal tract with a barium meal. The patient is seen fasting and the stomach and duodenum examined to exclude possible pathology in this region for, as is well known, chronic and subacute appendicitis frequently give rise to symptoms referable to the upper gastrointestinal tract. The patient is seen again in six hours at which time the barium meal should have reached the cecum. A twenty-four hour examination is made routinely, and forty-eight and seventy-two hour examinations are made if indicated and desired. The chest is also routinely fluoroscoped to exclude gross pathology in the lungs, especially in the right base, for pathology there frequently simulates appendicitis.

The location of the cecum should be noted as this is often important to the surgeon in determining the type of incision. It often also clinches the diagnosis of appendicitis. Under the fluoroscope, the cecum is examined for mobility and tenderness. The presence of tenderness over the cecum is probably the most important diagnostic finding, and it can be readily understood that the radiologist in this respect has a distinct advantage over the clinician. If visualized, the appendix is palpated over its extent for tender points and for mobility. Various other findings such as kinking of the appendix, irregularity in its outline, seventy-two hour stasis, have been considered significant in diagnosing appendicitis, but there is considerable dispute among radiologists as to their value. The location of the appendix is noted, whether it is in the normal position or to the right of or behind the cecum. A retro-cecal appendix, while not always pathologic, is certainly not fortuitous, and should be looked upon with deep suspicion.

It must be realized that a good radiologist will make use, not only of radiological findings, but also of whatever clinical information is available. A brief history is always obtained, especially of previous operations to avoid the possibility of reporting appendicitis in a patient whose appendix has already been removed, as frequently following appendectomy, tenderness over the cecum may be elicited over a period of years.

The colon is carefully examined to exclude or demonstrate such conditions as diverticuli, malignancies, or colitis, which may becloud or complicate the patient's condition.

In conclusion, emphasis should be laid on the fact that roentgen rays are extremely valuable in excluding pathology in portions of the intestinal tract other than the appendix, in the lungs and urinary tract. It should be emphasized also, that the demonstration of a tender cecum or tender appendix is the most important single radiological diagnostic finding in appendicitis.

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## OSCAR ALLEN TUMOR CLINIC
## CHARITY HOSPITAL
New Orleans

The scientific meeting of September, 1936, was called by Doctor J. T. Nix, Director. The essayist was Doctor C. E. Gorman who presented the following paper.

### PRIMARY MULTIPLE MALIGNANCIES

For many years multiple malignancies have been considered as medical "curiosities" or "freaks". A number of authors profess the belief that these are due entirely to chance. It is the purpose of this paper to show the incidence of multiple malignancies as seen in the Tumor Clinic of Charity Hospital, to show that these cases are not "curiosities" due entirely to chance, that they are clinical as well as histological entities, and lastly, to create thought and discussion from a genetic and hereditary viewpoint.

The first case report of multiple primary tumors was given by Billroth as early as 1860. In considering the diagnosis of multiple tumors, he evolved three rules which he considered necessary to establish a true diagnosis. These rules were later named Billroth's criteria. Two of these are well founded. The third, concerning metastasis, is too rigid for routine consideration. Billroth's criteria are:

1. Independent histologic appearance.
2. Arising in different situations.
3. Producing its own metastasis.

Let us consider the frequency of multiple tumors. Hansemann[1] in 1,000 autopsies found five cases of multiple primary malignancies. Gade[1] reviewed 4,219 cases of malignancies of which 0.76 per cent were multiple tumors.

From the State Institute for the Study of Malignant Disease, Buffalo, New York[2], comes some very interesting data. It is their opinion that primary multiple cancer is a great deal more frequent than has been heretofore recognized or acknowledged. Of their total number of malignancies observed, they report 2.7 per cent as being cases of primary multiple cancers.

In 1932 Shields and Gates[3] made an exhaustive rievew of the literature on the subject of primary multiple cancer. Their statistics regarding the percentage of frequency were put into three divisions. The only figures considered were those obtained throughout the United States and the author's own series of cases. The results were 1.84 per cent, 3.9 per cent, and 3.7 per cent respectively. Of particular interest from genetics as well as a histo-pathological study, is a series reported by Borgen and Coffey[4]. These authors observed 1,500 cases of chronic ulcerative colitis. Of this number thirty developed cancer. Seven of the latter number were multiple malignancies. Along the same line is a case reported by Felsen and Wells[5]. It is one of adenomatosis coli and carcinoma. The authors point out the high incidence of malignant degeneration and especially an underlying tendency to multiplicity.

The question of effect and etiology of multiple tumors is often discussed. Lund[6] gives the opinion that in multiple cases there is no evidence that the two lesions have either a favorable or an unfavorable effect on each other. These lesions must be considered as separate cancers. We agree with Lund that each cancer must be handled separately. On may be radio-sensitive and another radio-resistant. We also believe the prognosis to be more grave where multiple malignancies exist. This multiplicity of lesions is strong evidence that these patients have a cancer diathesis; therefore, the possibility of their having a recurrence is maximal.

Other interesting cases were reported by Goldstine[7] and by Skeelaus and Haskell[8]. The most interesting case of multiple malignancy[9] which reviewed was the one which we may term the "Pathological museum—walking." At autopsy four tumors were found. Three were malignant and one benign. In addition to this, the man had had a rodent ulcer excised some years previous. The tissues showed adenocarcinoma of the liver; adenoma of the kidney; carcinoma of the face, basal cell type; and epidermoid cancer of the penis.

In the past three years there have been six cases treated at the tumor clinic of Charity Hospital, New Orleans. This is 1.5 per cent of the entire number of malignancies seen at that clinic. All six of these cases meet with Billroth's postulate in two ways. They are definitely different cancers by histological study. The site of occurrence is far removed, one from the other. As for the metastasis, we hope the patients will not have recurrences or metastasis in these cases. One of the more interesting cases is that of:

Case 1. J. G., Number 20,486, a 69 year old white man with transitional cell carcinoma, grade III, was apparently cured in 1933. He returned on September 1, 1936, with a lesion on the right hand and one in the floor of the mouth on the left side. The latter was reported as early transitional cell cancer, the former as squamous cell carcinoma, grade II.

Probably the most complicated case of this group seen in the clinic was that of:

Case 2. Mrs. J. B. V., Number 108,423, a 73 year old white female was admitted to the hospital on May 22, 1924, with a marked enlargement of the thyroid. On May 24, 1924, the thyroid was removed for adenoma. It was reported fetal adenoma and careful study revealed no malignancy. Six years after operation the gland began to enlarge. In February, 1934, she had profuse mouth hemorrhage for several days. Roentgen ray showed destruction of the larynx, and indirect laryngoscopy, paralysis of the left vocal cord. Biopsy of a nodule on the left side of the gland showed carcinoma. From February 14, to March 16, 1934, the patient was given 3,100 roentgens over the thyroid. This caused considerable regression but at the time of admission to the Tumor Clinic, the thyroid was so vascular that extra-systoles could be detected by palpation of the gland. An operation was advised but the patient would not consent. In October, 1934, 1,600 roentgens were given to the thyroid. A small node appeared on the left side of the neck in February, 1935, and 2,400 roentgens were given to the cervical area. In September, 1935, the right labium major was excised for lesion which was found to be squamous cell carcinoma, grade II. One thousand milligram hours were given to the vulva with a radium mold on October 10, 1935. Activity was noticed in the left labium in January, 1936, and is was excised. The thyroid began to enlarge in May, 1936, and 1,600 roentgens were given over it and to the recurrence of the cervical metastasis. The patient has become aphonic and has remained so for two months. This was a case of a carcinoma of the thyroid and squamous cell carcinoma of the vulva.

Case 3. F. C., Number 123614, a white male, 56 years old, was admitted October 11, 1934. The medial half of the hand had been amputated one month previous for extensive squamous cell carcinoma, grade I. The lesion had developed in the scar of an old injury of the hand. General health was good. The incision had not healed completely but there was no evidence of neoplastic activity. The index and thumb, the only remaining fingers, had good function. No epitrochlear or axillary nodes were palpable. On November 30, 1934, the patient returned. The hand looked well but he had noticed the growth of a "mole" on the right side of the face. The lesion was excised and was reported squamous cell carcinoma, grade I. On

May 24, 1935, the patient returned with pain and swelling of the muscular tissues of the forearm, the result of a fall sustained three weeks before. Roentgen ray showed no bone pathology. The forearm was aspirated and bloody fluid was obtained. Smear showed no neoplastic cells. The condition was diagnosed post-traumatic hematoma. In July, 1935, the patient returned with greater swelling of the forearm which was painful, red and tender. Aspiration yielded clear, straw-colored fluid. It was believed that a cavity of the hematoma had become infected and he was admitted to the hospital for drainage. The swelling was incised anteriorly and posteriorly and tissue obtained from the depth of the lesion was reported squamous cell carcinoma, grade I., no epitrochlear or axillary adenopathy. The patient refused amputation. Radiation was given to the tumor and to the axilla. In January, 1936, the arm was severed above the elbow. Thorough examination of the tumor showed only malignancy of the lowest grade. Large axillary nodes developed in March, 1936, when radiation was again instituted. Roentgen ray of the chest showed no pulmonary metastases, but the patient's general condition rapidly grew worse and he succumbed. This was a case of squamous cell carcinoma of the right hand and face, grade I.

Case 4. A. P., Number 63,337 white male, 87 years old, was first admitted December 26, 1933, with an enlarged upper lip, ulcerated on the facial and buccal surfaces. Enlargement had been progressing for a year; roentgen-ray therapy had been tried without benefit. His general health was robust despite his years. No cervical nodes were palpable. Biopsy from the buccal surface showed bascal cell carcinoma. On January 5, 1934, the tumor received 1,200 mghrs. of radium with a mold. This secured healing but ulcers reappeared in July, 1934, and March, 1935. These were treated with radium, giving 300 and 200 mghrs, respectively. In December, 1935, the entire upper lip was indurated and had an ulcerated deep notch. Biopsy from the buccal surface showed transitional cell carcinoma, grade III. On December 10, 1935, 300 mghrs. of radium were applied locally. Because fibrosis was so extensive healing was poor, and in March, 1936, the entire upper lip was resected. Sixteen hundred roentgens were given to each side of the neck. The patient is doing nicely. This is a case of a basal cell, and a transitional cell carcinoma of the upper lip.

Case 5. J. S., Number 18,409, white male, 57 years old, was admitted to the hospital May 22, 1934, with an extensive ulceration of the left ear. The ulcer had begun in 1930 in front of the ear and continued to enlarge, extending over the pinna despite nine applications of a radium plaque at intervals of two to three months. On January 4, 1934, 2,150 mghrs. had been given with a radium mold. Roentgen-ray therapy was given weekly for three months. No benefit was obtained from this radiation. The ulcer was painful and it suppurated. It measured about 9 centimeters in diameter and was excavated. There were no palpable cervical nodes. The general health was excellent. Biopsy showed carcinoma, probably arising from sweat glands. An effort was made to clean up the infection. He was admitted to the hospital for excision to be followed by radiation but he deserted without treatment. He returned in November with pulmonary symptoms and died November 30, 1934, of pneumonia.

Autopsy showed consolidation of areas of the lungs. Upon stripping the dura from the base of the cranium, an erosion was noted extending through the lateral aspect of the temporal bone anterior to the left external auditory meatus, but there was no meningitis. In the depth of the facial ulcer a small hard, pearly mass was found which on microscopic study proved to be a mixed tumor of the parotid with cartilage formation. Occasional areas suggested an adeno-adamantinomatous growth. The diagnosis was lobular pneumonia; generalized cloudy swelling of the viscera; basal cell carcinoma of the face; mixed tumor of the parotid.

Case 6. J. R., Number 12,160, white male, 69 years old, was admitted on October 19, 1933, complaining of a lesion on the lower lip, of one year's duration. Biopsy was refused. The clinical diagnosis was basal cell carcinoma. The patient recived 4,448 roentgen units from October 20, to November 2, 1933. He returned on February 6, 1934, with a lesion on the right side of the nose, apparently a basal cell carcinoma. He received 2,720 roentgen units in three treatments. On September 28, 1934, he again applied for treatment complaining of a left post auricular mass. Biopsy showed this to be squamous cell carcinoma, grade II. Excision was done and the patient received 1,600 roentgen units to each side of the neck. He was seen again on August 20, 1936; all lesions had healed and there were no signs of recurrence. This is a case of "clinical" basal cell cancer and squamous cell carcinoma.

Each of the foregoing cases presented histopathological differences and usually a variability of location which would corroborate the impossibility of metastases.

Having studied the cases presented in this series, we are of the same belief as Bugher[10]: He has made an extensive study of the possibilities and probability of occurrence. This data with the six cases of the Tumor Clinic enabled us to conclude af follows:

## CONCLUSIONS

1. The incidence of multiple cancer exceeds the number we would expect from chance.
2. One and a half per cent of the cases in the

Tumor Clinic of Charity Hospital were multiple malignancies.

3. Multiple cancer is a clinical histological entity.
4. Cancer diathesis is the logical explanation for multiple malignancies.

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## HUTCHINSON MEMORIAL CLINIC

Scientific section presented by the Department of Obstetrics, Dr. H. Weinberg presiding.

Dr. Weinberg: The first case I have to present is a diagnostic problem, and the patient will be shown later for any suggestions you have to offer. She is a 41 year old multipara. We delivered her of her last child in December, 1934. This pregnancy was normal in all respects. Following this pregnancy, the patient had no period until July, 1935. When the periods restarted they were irregular and the flow somewhat excessive. In July, 1935 the patient again began to menstruate and menstruated until November, 1935. After she missed this period she became nauseated and continued to be so until January. No other symptoms of pregnancy were present. In March, 1936 the patient first started bleeding in small amounts. On awakening in the morning she would find her pajamas spotted with blood. She presented herself to this clinic for the first time on March 9, 1936, at which time she was bleeding slightly. Because of the bleeding no vaginal examination was done, but the uterus could be palpated 7 cm. above the symphysis pubis. A Friedman test at this time was positive. On bed rest and symptomatic treatment bleeding stopped and has not appeared to the present date. There has been from this time to the present a very small growth of the size of the uterus. Measurements of the uterus show:

| | | |
|---|---|---|
| 3- 9-36 | 7 cms. | (Admission) |
| 4-28-36 | 10 cms. | |
| 7- 3-36 | 11 cms. | |
| 7-17-36 | 11½ cms. | |
| 8- 7-36 | 11½ cms. | |
| 9- 2-36 | 11½ cms. | |

A Friedman test in May, 1936 was strongly positive and again in August was still strongly positive. In spite of this test presumably positive for pregnacy, the uterus has not grown correspondingly. In the last two months there has been only an increase of a half centimeter in the size of the uterus. Physical examination, blood record and Wassermann are normal.

In the discussion Dr. W. H. Perkins suggested an x-ray as an aid in establishing a differential diagnosis between a pregnancy and any soft tissue growths within the uterus. Dr. Alfred Gage asked of the possibility of any obstruction of the cervical canal which might retain products within the uterus. A question as to the accuracy of the test was brought up by Dr. Perkins and Dr. J. L. Dixon, but the Department of Obstetrics believed the test to be dependable in this case, particularly because of extra precautions that had been taken.

Dr. Weinberg in closing made the suggestion that probably the patient had been pregnant up until the time of her original bleeding as borne out by the Friedman test, and had lost the pregnancy during this period of bleeding, had subsequently become pregnant again. The other possibility was that the patient had lost the pregnancy but had retained enough placental tissue in the uterus to cause the Friedman test to remain positive and the uterus to retain its size. The Department of Obstetrics feels that hydatidiform mole has been ruled out. The Department will investigate the case further.

Dr. Weinberg: The second case I have to present is a follow-up report. As some of you may recall, the patient presented herself at this clinic to be delivered of her child. On admission July 14, 1935, she was about five weeks pregnant. A Friedman test came back positive. The patient complained of myriads of symptoms, chief of which was persistent vomiting, which became so bad that on July 28 she was admitted to a local hospital. Here she was given symptomatic treatment, part of which was 30 grains of bromide twice a day. In the hospital, she was given a blood transfusion, but no Wassermann was run on the donor previous to the transfusion. While in the hospital she broke out with a profuse rash, which was interpreted there as a bromide rash, and the bromide discontinued. She returned to the clinic on August 18 worse instead of better and with her body covered with a diffuse papular rash. A Wassermann was strongly positive; her initial

Wassermann had been negative. The diagnosis of secondary syphilis was made and it was felt that the patient had contracted syphilis from the donor of the blood. A Wassermann was therefore run on the donor, which returned strongly positive. A Wassermann on the patient's husband was negative and has remained so. A check of the patient's spinal fluid revealed a positive spinal Wassermann, many lymphocytes and a trace of albumin. We feel that this is definitely a case of syphilis contracted through blood transfusion. The patient was placed on antileutic treatment and responded nicely, although not ideally. She was delivered of a live child in January, 1936. This child has been given antileutic treatment and has responded well.

In the discussion Dr. Willoughby Kittredge of the Department of Urology stated that regarding the antileutic treatment the patient is not satisfactory in that she is delinquent much of the time. The patient is apparently psychoneurotic and many of her complaints are on that basis. Dr. Alton Ochsner asked if there were any history of primary lesions in the donor, but information in this respect was lacking. Dr. Ochsner quoting Dr. Morgan, Professor of Medicine at Vanderbilt University, stated that syphilis can be transmitted in the blood only when the donor is in the secondary stage. Dr. Perkins cited a case in which a man had given 30 transfusions then went off for a rest and came back in six weeks. He offered himself as donor at this time and the patient contracted a very severe spinal syphilis. Dr. Ina Harper, reporting from the Department of Pediatrics, said that the patient's baby was getting along excellently.

Dr. Weinberg: The third case is that of a multipara—para VI who presented herself at the clinic on May 6, 1936 for deliverey. Previous pregnancies were normal. On admission the patient weighed 222 pounds. The blood pressure was slightly elevated but subsequently dropped to 112/70, and remained such during her treatment here. Patient went along normally, except for persistent gain in weight. On June 3, 1936, she weighed 230 pounds; on July 1, 1936, she weighed 239 pounds; July 8, 1936, after being placed on a salt-free, low protein diet, the patient's weight dropped to 234½, but the following week had jumped to 243 pounds. At this time she was complaining of some shortness of breath, and marked edema of the feet. She was referred to the Department of Medicine, where a diagnosis of heart failure was made. An attempt to digitalize patient failed. The patient felt somewhat better. On July 15, patient weighed 252½ pounds, a gain of 9½ pounds in one week. She was sent to a hospital on that day. Unfortunately, because of crowded conditions, it was impossible to admit the patient until four days later. A urinalysis, which had been run in this clinic when patient was last seen here, was negative. On admission to the hospital temperature was 98.6° F, pulse 80 per minute, respiration 20 per minute. She was placed on a low caloric (1000 calories per day) diet, and fluids restricted to 1000 c. c. daily. These plus absolute bed rest benefitted the patient, her output increased over her intake, and much of the edema subsided. Unfortunately, the initial urine was discarded, but that run four days after her admission showed 4 per cent albumin, which subsequently jumped to 8 per cent three days later. A consultation with an internist was asked. He found no evidence of right-sided heart failure. Her blood pressure, which had never gone above 112/70 at Hutchinson Memorial Clinic jumped to as high as 190/110 in the hospital. At the time of admission to the hospital, patient was eight and a half months pregnant. She was at her optimum condition after one week in the hospital. After this time, she started sinking slowly. A week later a bag induction was started and after 25 hours, a live baby was born. The immediate postpartum was good. Her respiration rose to 28, temperature which was 101°F. at time of insertion of bag, jumped to 103° F. the night after delivery. Patient became gradually worse and in spite of treatment, died the following morning. The last voided specimen was milky-white in color, and full of red and white cells.

A complete autopsy done on the patient showed the cause of death to be a severe pyelonephrosis. There was in addition a hypostatic pneumonia of both lungs, a slight hypertrophy of the heart, and a rather severe toxic hepatitis; this was also felt to be one of the main contributing causes of death. The gallbladder was slightly diseased and four stones were present. The bladder showed marked cystitis and was badly diseased. The heart revealed a mild hypertrophy, but was not at all in proportion to the suspected clinical suspicion.

In the discussion it was considered that the early variations in weight may have been evidence of disease of the kidneys, and that her subsequent symptoms were those of kidney disease and not due to failure of the heart.

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## SHREVEPORT MEDICAL SOCIETY

The regular meeting of the Shreveport Medical Society was called to order by the President on September 1, 1936, with 33 regular members and one guest present. Minutes of the previous meeting were read and adopted.

Committee Reports: Dr. Lucas, Chairman of the Social Affairs Committee, reported that at the social meeting last month there were 106 present and that there had been a net gain of $7.65. There being no further committee reports, attention was then turned to the scientific program.

Scientific Program: Dr. T. M. Oxford read a very interesting and instructive paper regarding strains and sprains, emphasizing the desirability of more careful treatment of sprains to prevent recurrences and lengthening of disability. This paper was discussed by Dr. Pirkle.

Dr. Dorf Bean then presented a brief discussion concerning tonsillar infection in children and adults, pointing out that he got about 70 per cent good results in children and young adults, but a higher percentage, approximately 100 per cent, in older cases. In the discussion, it was pointed out that three years is usually the earliest age at which tonsillectomy should be done, unless the tonsils are badly involved. It was further pointed out that in some of the very young cases it was desirable to remove the adenoids if they were the offending structures, leaving the tonsils alone.

New Business: Application for membership of Dr. DeLee was received and the Society voted that it take the usual course. On this committee were appointed Dr. D. M. Pipes, Chairman, Dr. Paul Winder and Dr. C. R. Mays.

Paul D. Abramson, M. D., Sec.

# TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

## CALENDAR

OCTOBER 1 Pathological Conference, Hotel Dieu, 11 a. m. to 12 noon.

OCTOBER 5 Special Meeting, Orleans Parish Medical Society, 8:30 p. m.

OCTOBER 5 Board of Directors, Orleans Parish Medical Society, 8 p. m.

OCTOBER 5 Eye, Ear, Nose and Throat Staff, 8 p. m.

OCTOBER 7 Clinico-Pathological Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

OCTOBER 7 Woman's Auxiliary, Orleans Club, 3 p. m.

OCTOBER 7 Board of Governors, 1st and 2nd District Dental Society, 8 p. m.

OCTOBER 7 Mercy Hospital Staff, 8 p. m.

OCTOBER 9 Pathological Conference, Hotel Dieu, 11 a. m. to 12 noon.

OCTOBER 9 French Hospital Staff, 8 p. m.

OCTOBER 12 ORLEANS PARISH MEDICAL SOCIETY, 8 p. m.

OCTOBER 13 Charity Hospital Dental Staff, 8 p. m.

OCTOBER 13 Touro Infirmary Staff, 8 p. m.

OCTOBER 15 Eye, Ear, Nose and Throat Club, 8 p. m.

OCTOBER 16 Pathological Conference, Hotel Dieu, 11 a. m. to 12 noon.

OCTOBER 16 I. C. R. R. Hospital Staff, 12 noon.

OCTOBER 19 Hotel Dieu Staff, 8 p. m.

OCTOBER 20 Charity Hospital Medical Staff, 8 p. m.

OCTOBER 21 Clinico-Pathological Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

OCTOBER 21 Charity Hospital Surgical Staff, 8 p. m.

OCTOBER 21 1st and 2nd District Dental Society, 8 p. m.

OCTOBER 23 Pathological Conference, Hotel Dieu, 11 a. m. to 12 noon.

OCTOBER 26 ORLEANS MEDICAL SOCIETY, 8 p. m.

OCTOBER 27 Baptist Hospital Staff, 8 p. m.

OCTOBER 28 Clinico-Pathological Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

OCTOBER 30 Pathological Conference, Hotel Dieu, 11 a. m. to 12 noon.

## DR FISHBEIN TO SPEAK

Dr. Morris Fishbein will address the Orleans Parish Medical Society on October 1, 1936 in the auditorium of the Society at 1430 Tulane Avenue. Dr. Fishbein will speak on "New and Changing Social Order in Medicine."

Another distinguished visitor to come to New Orleans will be Mr. Archibald M. McIndoe of London, England, who is one of the leading plastic surgeons of the British Empire. Mr. McIndoe will address the Orleans Parish Medical Society on Monday, October 5, 1936 at 8:30 P. M.

# LOUISIANA STATE MEDICAL SOCIETY NEWS

## 1937 ANNUAL MEETING

| | |
|---|---|
| General Chairman: | Dr. D. T. Milam, Monroe |
| Advisory Board: | Dr. R. W. O'Donnell, Monroe |
| | Dr. J. Q. Graves, Monroe |
| | Dr. J. B. Vaughan, Monroe |
| | Dr. A. G. McHenry, Monroe |
| | Dr. C. P. Gray, Sr., Monroe |
| Hotel Headquarters: | Frances Hotel. |

The Ouchita Parish Medical Society, hosts to the State Society for the 1937 Annual Meeting, announce the appointment of the above listed physicians to have charge of the details of the meeting. There is no question that under the active leadership of the General Chairman, Dr. Milam, with the help and assistance of the extremely capable Advisory Board, this meeting in Monroe will be one of the outstanding meetings of recent years.

Note that the Hotel Headquarters are at the Frances Hotel. While this Hotel has adequate capacity for taking care of many of the visitors next April, those desiring to obtain reservations in the headquarters hotel should apply promptly

## EXTENSION GRADUATE TEACHING IN LOUISIANA

The following is the tentative program for the course in obstetrics to be held under the auspices of the Louisiana State Medical Society.

These meetings will be held every evening for five consecutive nights beginning at seven and closing at nine o'clock. The first conference will be given Monday and the last Friday. Lectures, motion picture demonstrations, consultation conferences and general discussion will be on the program each night. The necessary expenses for these meetings are being financed from the Social Security fund.

October 5- 9—Minden—Fourth District—Dr. J. W. Reddoch.

October 12-16—Ruston—Fifth District (Speaker in charge to be selected).

October 26-30—Bastrop—Fifth District—Dr. A. Caire.

November 2-6—Hammond—Sixth District—Dr. P. Carter.

November 9-13—Natchitoches—Eighth District—Dr. C. R. Mays.

November 16-20—Opelousas—Seventh District—Dr. Peter Graffagnino.

November 30—December 4—Jennings—Seventh District (Speaker in charge to be selected)

December 7-11—Franklin—Third District—Dr. E. L. King.

December 14-18—Donaldsonville—Sixth District—Dr. W. Levy.

## NEWS ITEM

Dr. H. W. Kostmayer, Dean and Professor of Gynecology in the Graduate School of Medicine of Tulane University, and President of the State Society, addressed the meeting of the Bi-Parish Medical Society held at Jackson, La., on August 5, 1936, on "Endocrine Problems in Gynecological Practice".

Dr. Kostmayer also addressed the Central Medical Society at their meeting held at Jackson, Miss., on Sept. 1, 1936. The subject of the lecture was "Clinical Applications of the Endocrines in Gynecology."

The International College of Surgeons, with headquarters in Geneva, Switzerland, wishes to announce that it will hold its first examination for Membership and Fellowship sometime before January 1, 1937. In the United States the examinations will be held in New York City, Chicago, Durham, N. C., San Francisco, San Antonio, Texas and Rochester, Minn. The fee for the examination will be $250.00.

Assistant Surgeon C. E. Blankenship has been relieved from duty, New Orleans, La., on or about September 19, 1936 and ordered to U. S. Marine Hospital, Baltimore, Md., for duty, on or about September 23, 1936.

Assistant Surgeon T. H. Tomlinson, Jr., has been relieved from duty, U. S. Quaratine Station, New Orleans, La., on September 12, 1936 to proceed to Washington, D. C., for duty in the Scientific Research Division.

## RESERVE OFFICERS TRAINING

Notice has been received from the headquarters of the Seventh Corps Area, too late to publish in the September Journal, to the effect that the eighth annual inactive duty training for reserve officers of the Army and Navy will be held at Mayo Clinic, October 4-17, 1936.

## DR. FISHBEIN

Dr. Morris Fishbein, editor of the Journal of the American Medical Association, will pay a visit to New Orleans the first week of this month. In addition to addressing the Orleans Parish Medical Society, Dr. Fishbein will talk to the students of the Tulane Medical School and the Louisiana State University Medical School.

Dr. Joseph T. DeGrange, who for nearly half a century was the physician to the New Orleans Fire Department died at his home in New Orleans September 1, 1936. His death followed a very brief illness. He was interested in first aid work and was chairman of the first aid committee of the local chapter of the American Red Cross. In 1930 he conducted the first junior first aid Red Cross course ever to be given to a Boy Scout troop. In return for his services he was made "honorary tenderfoot scout" and was awarded a medal.

Dr. Camille P. Brown, former chief surgeon of the Illinois Central Hospital in New Orleans, died Sunday, September 6, 1936 in a hospital in St. Louis to which he had been taken the previous week for treatment of an illness which began several years ago. Dr. Brown, a native of New Orleans, attended Spring Hill College and obtained his medical degree from Tulane University Medical School. Most of his career was spent in the service of the Illinois Central Railroad Company. However, a few years ago he resigned to enter private practice in New Orleans.

Dr. J. D. Hunter, supervisor of the Acadia Parish Health Unit, died at Touro Infirmary, New Orleans, September 16, 1936. Dr. Hunter was formerly a member of the Louisiana Legislature. He was a graduate of the University of Tennessee Medical School.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census reports that for the week ending August 15, there were 151 deaths in the city of New Orleans; 101 white and 50 colored. The death rate for the group as a whole was 16.4, for the white race 15.4 and for the colored 18.7. The infant mortality rate this week was 64. For the next week, ending August 22, there was a slight decrease in the total number of deaths there being 138, divided 72 white and 66 colored, with a death rate for the three groups of 15.0, 11.0 and 24.7. The infant mortality rate this week was 93. The succeeding week the death rate remained almost the same as the preceding week, being 15.1 for the population as a whole and for the white 14.1 and for the negro population 17.6, resulting from 139 deaths divided 92 white and 47 colored. The infant mortality rate was 99. For the first week of September, ending on the 5th, the total deaths increased to 154 of which 96 were white people and 58 were colored. The death rate for the three groups respectively was 16.7, 14.7 and 21.7. There was a considerable increase in the infant mortality rate which was 134, the rate for the white being 128 and the negro 141. A short drop occurred in the total deaths for the week ending September 12. The death rate was well below the 37 week rate of 18.7, being only 13.7. This was due to the low rate of 11.2 for the white population and the low comparative rate of 19.9 for the negro. These figures were obtained as a result of 126 deaths, apportioned 73 for the white and 53 for the colored. The infant mortality rate was only 52.

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## INFECTIOUS DISEASE IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the State of Louisiana, which contain the following summarized information: For the week ending August 22, the 34th week of the year, the following diseases were reported in double figures; 56 cases of pneumonia, 48 of malaria, 35 of cancer, 37 of pulmonary tuberculosis, 29 of typhoid fever, 22 of influenza and 18 of syphilis. Typhoid fever cases were reported throughout the State; Caddo and Orleans Parishes leading with 6 and 7 cases, respectively. Two cases of poliomyelitis were reported, 1 from Orleans and 1 from St. Martin Parish. One case of typhus fever was reported from Calcasieu. Practically all of the typhoid fever cases reported from Orleans Parish were imported and the case of poliomyelitis listed from Orleans was also imported. For the following week, ending August 29, malaria led all reported diseases with 54 cases listed. This was followed by 53 cases of pneumonia, 35 of pulmonary tuberculosis, 32 of gonorrhoea, 31 of syphilis, 30 of cancer, 23 of influenza and 21 of typhoid fever. Of the unusual diseases, 3 cases of typhus fever were reported from Orleans Parish. No Parish had more than 3 cases of typhoid fever this week. For the week ending September 5, there were listed 87 cases of syphilis and 63 cases of pneumonia, a sharp rise in the latter disease. Other diseases in double figures included, 49 cases of malaria, 48 of pulmonary tuberculosis, 33 of typhoid fever, 30 of cancer, 28 of gonorrhea, 15 of influenza and 10 of diphtheria. During this week 3 cases of poliomyelitis were reported, 1 from Caddo and 2 from Ouachita Parish. Orleans Parish, with 8 cases of typhoid fever, reported more than any other Parish. This was followed by 5 cases from Union Parish. The 37th week of the year, ending September 12, pneumonia led all other reported diseases and was almost double the average, there being 52 cases listed.

The other reported diseases included 26 cases of pulmonary tuberculosis, 25 of typhoid fever, 23 of cancer, 17 of influenza, 16 of syphilis, 14 of malaria and 12 of gonorrhea. Of the unusual diseases, 1 case of typhus fever was reported from Calcasieu Parish, 1 case of undulant fever from E. Carroll, 1 case of poliomyelitis from LaSalle and 1 case of epidemic cerebrospinal meningitis from Orleans.

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## WOMAN'S AUXILIARY

### Louisiana State Medical Society

President—Mrs. James Byron Vaughan, Monroe.
President-Elect—Mrs. George D. Feldner, New Orleans.
First Vice-President—Mrs. F. G. Ellis, Shreveport.
Second Vice-President—Mrs. T. H. Watkins, Lake Charles.
Third Vice-President—Mrs. E. B. Middleton, Homer.
Fourth Vice-President—Mrs. R. R. Arceneaux, Welsh.
Recording Secretary—Mrs. C. Grenes Cole, New Orleans.
Corresponding Secretary—Mrs. Joseph P. Brown, Monroe.
Treasurer—Mrs. Courtland P. Gray, Monroe.
Parliamentarian—Mrs. R. T. Lucas, Shreveport.

So that we may all become familiar with the names of the ladies serving the State and Parish Auxiliaries, listed below you will find the officers of the various parishes, and State Councellors. Some of these names have been listed before, but this month's publication of the Journal gives you a complete set-up:—

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### COUNCELLORS

First District—Mrs. Russell E. Stone.
Second District—Mrs. Frances Hava.
Third District—None.
Fourth District—Mrs. C. P. Rutledge.
Fifth District—Mrs. A. G. McHenry.
Sixth District—None.

Seventh District—Mrs. Stackley Hatchett.
Eighth District—Mrs. M. B. Pearce.

### CADDO PARISH

President—Mrs. R. T. Lucas.
President-Elect—Mrs. J. T. Crebben.
First Vice-President—Mrs. W. J. Sandidge.
Second Vice-President—Mrs. M. S. Picard.
Recording Secretary—Mrs. E. L. Gill.
Corresponding Secretary—Mrs. J. M. Bodenheimer.
Publicity Chairman—Mrs. M. D. Hargrove.
Parliamentarian—Mrs. C. E. Rew.

### ORLEANS PARISH

President—Mrs. W. P. Gardiner.
President-Elect—Mrs. Jules Myron Davidson.
First Vice-President—Mrs. Alton Ochsner.
Second Vice-President—Mrs. Daniel Silverman.
Third Vice-President—Mrs. George D. Feldner.
Fourth Vice-President—Mrs. Clyde Brooks.
Treasurer—Mrs. Aynaud Hebert.
Recording Secretary—Mrs. H. Vernon Sims.
Corresponding Secretary—Mrs. John S. Dunn.
Historian—Mrs. Anees Mogabgab.
Parliamentarian—Mrs. Frank C. Hava.
Publicity Chairman—Mrs. Edgar Burns.

### CALCASIEU PARISH

President—Mrs. L. Z. Kusher.
President-Elect—Mrs. McKinney.
First Vice-President—Mrs. W. P. Bordelon.
Second Vice-President—Mrs. J. A. Crawford.
Recording Secretary—Mrs. Olin Moss.
Corresponding Secretary—Mrs. W. P. Bordelon.
Treasurer—Mrs. H. B. White.
Parliamentarian—Mrs. T. H. Watkins.

### OUACHITA PARISH

President—Mrs. J. P. Brown.
First Vice-President—Mrs. A. L. Peters.
Second Vice-President—Mrs. A. D. Tisdale.
Treasurer—Mrs. I. J. Wolff.
Recording Secretary—Mrs. D. T. Milam.
Corresponding Secretary—Mrs. Henson Coon.
Publicity Chairman—Mrs. W. L. Bendel.
Historian—Mrs. P. L. Perot.
Parliamentarian—Mrs. E. R. Yancey.

### JEFFERSON DAVIS PARISH

President—Mrs. G. W. Remage.
Vice-President—Mrs. C. A. Martin.
Secretary—Mrs. R. R. Arceneaux.
Treasurer—Mrs. F. W. Harrell.

### CLAIBORNE PARISH

President—Mrs. H. R. Marlatt.
Vice-President—Mrs. S. A. Tatum.
Secretary-Treasurer—Mrs. E. B. Middleton.
Publicity Chairman—Mrs. C. W. Phillips.
Program Chairman—Mrs. E. A. Campbell.
Hygeia Chairman—Mrs. M. J. Rivenbark.

Mrs. George D. Feldner, Chairman,
Press and Publicity.

### CLAIBORNE PARISH

The Woman's Auxiliary to the Claiborne Parish Medical Society held their September meeting in Homer at the home of Mrs. S. A. Tatum.

Splendid reports were made from Hygeia and Magazine chairmen. Hygeia Health Magazine has been placed in the nine high schools of the parish; a donation of 150 magazines to the Claiborne Parish Health Unit to be distributed in the communities by the health nurses; some glasses were also purchased for indigent children and a contribution to the Indigent Physicians' Fund was made.

Many of the principal functions of the auxiliary were discussed and definite plans for the annual sale of the Tuberculosis Seals and essay contest for school children were among the activities to be accomplished during the coming year.

The meeting adjourned to meet in the home of Mrs. J. C. Sherman, Haynesville, October 9. The president, Mrs. H. R. Marlatt urges all members to be present as plans will be presented at this meeting and the program of work for the year decided upon.

We were called to mourn the loss of the mothers of Doctors H. R. Marlatt and E. A. Campbell of Homer. The Auxiliary extends its deep sympathy and may the memory of the honorable lives just ended sustain and comfort you.

Mrs. C. W. Phillips,
Publicity Chairman.

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## BOOK REVIEWS

*Examination of the Patient and Symptomatic Diagnosis*: By John Watts Murray, M. D., 2nd ed. St. Louis. C. V. Mosby Co., 1936. pp. 1219. Price $10.00.

The second edition of this excellent book appears ten years after the first. In the meantime there have been many advances made in medicine which have been incorporated where and when indicated in the new edition.

The book is divided into two main sections, one of which has to do largely with history taking and examination of the patient, and the second part with disease of single organs or systems of the body. The book is largely for the use of students. For example, interrogations are used repeatedly, which questions must be answered by the examiner, in this instance, presumably the student. Thus under the voice the question is asked "Is the voice weak? Is voice lost? Is it a nasal voice?" If this is found to be the case then the answer is given below the question. If the book is being used by the student he first should review in his mind causes for these phenomena and then secure the answer. The reviewer doubts that this method of presenting the subject would be of particular interest to the practitioner of medicine. As a matter of fact it makes for difficult reading and makes it also difficult for reference. The format of the book on the whole is good. The illustrations, however, are not clear and while well selected, on account of the lack of clarity, many of them might well have been omitted. The index is by no means adequate.

J. H. Musser, M. D.

*A Treatise on Medical Jurisprudence*: By Benton S. Oppenheimer, LL.B., LL.M. Baltimore. William Wood and Company, 1935. pp. 290. Price $5.00.

This volume, for review, deals with medical jurisprudence in its entirety, and offers for consideration a foreword with nine (9) chapters, as follows:

1. Medical Jurisprudence and the Practice of Medicine.
2. Relation between Physician and Patient.
3. Duties and Obligations of Physician to Patient.
4. Malpractice.
5. Actions.
6. Evidence.
7. Hospitals.
9. Miscellaneous.
8. Dying Declarations,

together with index of cases and index of topics concluding.

It is well written in continuity, by one who ranks foremost in the realm of medico-legal jurisprudence with the topics clearly explained, readable and easily assimilated and understood, for the benefit of the physician in general and the specialist in particular.

The historical and chronological sequence bespeaks a painstaking investigation; especially is it noted, under "Medical Jurisprudence and the Practice of Medicine", that in the early centuries the church was closely allied to medicine.

In the chapter on "Evidence", the question of the functions of a neuropsychiatrist for the purpose of commitment, is very well covered; likewise, the question of a physician as expert witness. Later on, under "Miscellaneous", the office of coroner is clearly and distinctly defined. However, some criticism has been leveled in that direction to the instances where medical intelligence has been sacrificed to political considerations, with resultant inefficiency.

The volume is well written, composed and printed by one of our very well-known publishers, will hold the attention of the reader, and should be added to the collateral bookshelf of every neuropsychiatrist and coroner.

Walter J. Otis, M. D.

*What You Should Know About Heart Disease*: By Harold E. B. Pardee, M. D. Phila., Lea & Febiger, 1935, 2nd ed. pp. 127. Price $1.50.

This is the second edition of this small volume intended for the education and guidance of the cardiac patient. Clearly written, it covers the subject matter sufficiently to accomplish its purpose. Placed in the hands of some intelligent patients it might well serve a useful purpose, but advice and explanation to cardiacs, as to all classes of patients, seems to the reviewer to be an individual problem, and indiscriminate distribution of such a book to all persons with heart disease might do more harm than good.

Willard R. Wirth, M. D.

"*Medical Papers*" Dedicated to Henry Asbury Christian; in honor of his sixtieth birthday, Feb. 17, 1936. Boston, Peter Bent Brigham Hospital, 1936. pp. 1000.

Someone has aptly remarked that if more taffy and less epitaphy prevailed among men, the millenium would arrive much quicker. This magnificent volume of medical papers dedicated to that great physician and teacher, Henry Asbury Christian, from his present and past associates and House Officers at the Peter Bent Brigham Hospital at Boston, Mass., in honor of his sixtieth birthday is a worthy tribute to a great man. Men who have achieved great eminence in American medicine have participated in this birthday celebration with the result that the reader is invited to an intellectual and cultural feast with the finest of viands served up to him from all fields of medicine. Subjects of medical interest still the possession of the medical minority, are here presented beautifully and capably. It is a book of 1000 pages, well gotten up and in moments of relaxation a fine companion.

I. L. Robbins, M. D.

*Medical Science Exhibits*: *A Century of Progress*, By Eben J. Carey, Sc. D., M. D. Chicago, Century of Progress, 1936. pp. 204.

This record of the scientific exhibits of the Century of Progress in Chicago, 1933-34, will serve not only as historical data of this occasion, but will be even more valuable as suggestive material for methods of display of scientific information. The volume is profusely illustrated.

Mary Louise Marshall.

*Why Bring That Up?* By J. F. Montague, M. D. New York, Home Health Library, Inc., 1936. pp. 130.

The author's subtitle, "To and from seasickness" serves well as a description of the volume. Printed on sea-green paper, and illustrated with inset sketches, appropriately chosen, an interesting volume has been achieved on this deplorable malady. The book will serve as a welcome gift to anyone contemplating a sea voyage, for actual directions are included which if followed carefully, will surely lessen and perhaps prevent an attack of seasickness. Since so little has been written on this subject, Dr. Montague's book is most timely, as well as affording humorous entertainment in the author's best style.

Mary Louise Marshall.

*Heart Disease and Tuberculosis*—Efforts, Including Methods of Diaphragmatic and Costal Respiration, To Lessen Their Prevalence: By Adolphus Knopf, M. D. New York, 1936. pp 108.

This small volume consists essentially of a rather sketchy account of the author's views of heart disease and tuberculosis as originally published in several numbers of The Medical Record. It was issued by the patients at the Potts Memorial Hospital.

Dr. Knopf believes that by means of his forced system of deep inhalations tuberculosis and certain forms of heart disease may be either prevented or cured. He has written extensively on this same subject previously and expresses the same optimism for these methods that characterized his earlier works. In detail, the exercises which are to accomplish this result are described; several illustrations depict the exercises. With this main thesis and with his faith in the efficacy of BCG as a preventive measure most authorities of the day would be inclined not to concur.

The remainder of the book is given over to a discussion of the more generally accepted concepts of tuberculosis and to the increasing prevalence of cardiac disease. Throughout the discussions, the author has distributed his views on the social and economic implications of disese.

This book is hardly one to be decommended to the indiscriminating reader.

Sydney Jacobs, M. D.

*On Percussion of the Chest*—Being a Translation of Auenbrugger's Original Treatise Entitled, "Inventum Novum Ex Percussione Thoracis Humani, Ut Signo Abstrusos Interni Pectoris Morbos Detegendi" (Vienna, 1761): By John Forbes, M. D. (London, 1824); Introduction by Henry E. Sigerist. Baltimore, Johns Hopkins Press, 1936. p. 31.

Although Auenbrugger's treatise is a classic, it has been translated into English only once, and that was in 1824 when John Forbes of London included it in his book on a consideration of diseases of the chest. In making available the English rendition of this epoch-making contribution to clinical medicine, Dr. Sigerist has been of great service to the profession. Originally, the contents of this small volume were published in the Bulletin of the Institute of the History of Medicine.

One historian has observed that although this little book was unsaleable in its day, it is now worth more than its weight in gold. The use of mediate percussion was not generally accepted for a long time after Auenbrugger announced it in 1760 because the practitioners of that time were not quite ready to grasp the significance of the newer discoveries in the fields of physiology and anatomy nor were they willing to apply them to their clinical problems. Auenbrugger worked seven years perfecting his method of mediate percussion (or of the "new sign") before he was willing to publish his observations. It is interesting to note that he insisted on a thorough understanding of the normal sounds elicited on percussion before applying this method to the detection of disease.

This delightful volume will well repay any reader and is to be enthusiastically recommended to all those who have to do with any phase of the healing art.

Sydney Jacobs, M.D.

*The Diagnosis and Treatment of Pulmonary Tuberculosis*: By John B. Hawes 2d., M. D. and Moses J. Stone, M. D. Philadelphia, Lea and Febiger, 1936. pp. 215. Price $2.75.

This is a splendid panoramic view of modern tuberculosis. From the vantage point of the reviewer one readily discerns the new and tried landmarks in the realms of modern diagnosis and treatment. This small and well written handbook is a fine guide to the more comprehensive study of pulmonary tuberculosis and a most reliable and ready reference. Bibliographical data are appended.

I. L. Robbins, M. D.

## PUBLICATIONS RECEIVED

Lea & Febiger, Philadelphia: Neuro-Anatomy by A. Kuntz, Ph. D., M. D. Chemical Procedures for Clinical Laboratories by Marjorie R. Mattice, A. B., Sc. M.

D. Appleton-Century Company, New York: Medicine & Mankind by Iago Galdston, M. D.

J. B. Lippincott Company, Philadelphia: International Clinics by Louis Hamman, M. D.

The C. V. Mosby Company, St. Louis: Fundamentals of Human Physiology by J. J. R. Macleod, M. B., D. Sc., F. R. S. Principles of Chemistry by Joseph H. Roe, Ph. D.

W. B. Saunders Company, Philadelphia: Diseases of the Air and Food Passages of Foreign-Body Origin by C. Jackson, M. D., and C. L. Jackson, M. D.

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## ENDEMIC TYPHUS*

W. H. SEEMANN, M. D.
New Orleans

On account of the lateness of the hour, I will, instead of reading a formal paper, make a few observations on the subject of endemic typhus. This disease, as far as recognition goes, is new in our community. The reduction of some diseases, like tuberculosis and others, gives opportunity for the study of what were rarer diseases; likewise, improved and more extensive research by governmental and private agencies assists in new discoveries. In my opinion, and I believe my opinion is shared by some, these diseases we are beginning to find now have existed for a very long time, and it is really through having a clearer method of diagnosis and probably a better chance of diagnosing them, with the lessening of the older and more prevalent diseases of former times, that some knowledge is gained.

The rat, in relation to our common everyday life, has always been known as a pest and a nuisance. It is only in the last score or more of years that the importance of the rat in the propagation of disease has become known. Some few years ago in New Orleans we had, on two occasions, what might have been a severe outbreak of bubonic plague, which as those of you who are medical men known already, is carried principally by means of the ordinary house rat. Among the house rats, three varieties are very prevalent. I am now talking particularly to the lay people present. You may very often wonder why, with all the money the government spends and all the efforts that have been made, and which even the housewives have made, to get rid of this pest, rats seem to be as numerous as ever. The reason is the great prolificness of the rat. Rats seem to habituate themselves easily to all sorts of environments and are able to breed under all sorts of conditions. Not only the rats, but other rodents and even insects, about which we do not know, seem to have in their bodies certain germs that appear to be able to develop a capacity to invade other animals.

In regard to diseases of the Rocky Mountain fever type, one of the major discoveries was made by King, who is well remembered by many of us, for his researches on malaria. He was stationed for some time at Mounds. He proved that the tick was a vector of the disease which has existed in the Bitter Root valley of Montana.

Tarbadillo, on the Mexican border, and Brill's disease, in New York, have been recognized as a milder type of typhus for years. Nicolle's demonstration of the role of the body louse in the transmission of typhus stimulated further investigation and established a close relationship between the Old World typhus and the New World type. No one knows just exactly to what group of organisms these germs belong. They have been called the rickettsia in honor of Ricketts, who lost his life while studying them in Mexico. The tendency, I believe, among most people who have had a chance to observe them is that they are small bacteria which have probably grown up from an original insect host and adapted themselves to infection of rodents and man.

In New Orleans, about five years ago, we had a small outbreak of cases principally among transients. I had an opportunity at that time, by inoculating a guinea pig with some live fleas that were caught on rats, to observe these bodies. If you have adequate laboratory facilities, it is easy to transfer them from one animal to another. The germs causing typhus and typhus-like disease have been recognized as rickettsia and appear to have met the major postulates of Koch.

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*Read before Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

The point I want to make before asking Dr. Williams to continue the discussion is that someone tonight, I think it was Dr. Fasting, remarked on the paucity of cases that were shown in the report of the Board of Health where examinations for hookworm and malaria had been made. That is also true in regard to typhus. It was not until we were asked by the United States Public Health Service, some fifteen years ago or thereabouts, to run, in all bloods sent in for Widal reaction, a test for the agglutination for undulant fever, that we began to find any evidence of undulant fever. Now it is commonly known that the disease is quite prevalent. While no one claims definitely that the X-19 group of Proteus has any etiologic connection, everybody admits that from the standpoint of diagnosis it is quite effective. With the large number of cases reported throughout the United States and the work that has been done, there must be large numbers of these very mild cases of endemic typhus which have a very low mortality, not over 2 per cent, I believe. I do not think we get five requests a month for this examination.

I am bringing this subject before you, in the hope that the profession and the laity will become typhus conscious and that greater care will be taken to recognize cases. This recognition will be, I am sure, facilitated by more frequent laboratory tests and the prompt reporting of suspicious cases. The danger of the diseases which are carried by rodents is tremendous. Within the last few months it has been found that the ground squirrel and other rodents infected with bubonic plague have crossed the Rockies from California. Plague infected rodents are now on the eastern border of the Rockies. Heaven knows what will happen if they ever get into the wheat fields and places where living will be easy for them, and where they can multiply and spread their infection.

## DISCUSSION

Dr. C. L. Williams (Algiers): I am convinced that Dr. Seemann asked that I discuss his paper on typhus because he knew that about twelve months ago I contracted typhus and he evidently wanted me as his exhibit. I might add that I also contracted one of the diseases Dr. Faust discussed in a previous paper, dengue fever. In fact, I had it twice. I mention this as a warning to you not to get these exotic diseases because, if you do, you will be in demand whenever they come up for discussion.

The epidemiology of endemic typhus is quite interesting and is an excellent example of some of the unexpected results that follow medical research. The stimulus in this instance was the demonstration in 1910 that the so-called Brill's disease, which had been found in some of our Eastern cities, was really typhus fever. This came as quite a shock to the medical profession. It started a search throughout the country for similar cases, and the result was that in a short time, within a few years, a large number of cases of typhus were found throughout the Southern states.

As soon as this became evident, epidemiologists started to look for louse association, it having been demonstrated that typhus was generally carried by body lice. It became glaringly evident that there was no louse association. That was something brand new, and at once the search was started for an animal reservoir. I am jumping very large gaps here in order not to take up too much time. If an epidemiologist misses a known method of transfer, he often starts looking for an animal reservoir of infection. In this case it is not very remarkable that the suspicion was centered upon man's worst enemy, the rat, and very shortly the suspicion was proved correct. It was, of course, natural that the rat flea should then be suspected as the vector, and that was soon proved to be correct also.

We have, therefore, another disease to which man is subject which is principally carried by another animal, and the history of such diseases has always been that they are extremely difficult to eradicate. Bubonic plague, of course, is the classical example, and to all intents and purposes, except that the disease is typhus and not bubonic plague, the Southern states are in the status of being plague infected. The conditions are very much the same.

To divert a moment to the rat, man is probably going to be forced to control the rat. It is the one wild animal that is closely associated with man and it carries entirely too many human diseases. Here is a list of those that I can pick out offhand: bubonic plague, typhus, infectious jaundice, rat bite fever, trichina, dwarf tapeworm, Lamblia intestinalis, amebic dysentery, tularemia, foot and mouth disease, and at least two diseases of horses. In addition to the fact that it is known to carry destructive diseases, it is an economic pest. It would appear there is ample justification for the expenditure of a considerable amount of energy to eradicate this species of vermin.

Further studies of endemic typhus developed the remarkable fact that the strain in rats was distinctly differentiated from the louse-borne typhus of the old world. Fortunately, it is a much milder disease, the death rate being about two per cent. It is probably this mildness, coupled with the rather evanescent nature of the rash, which is one of the principal signs, that has caused it to be missed for so many years in this country. In addition to that, the cases are sporadic and do not show contact with other cases. Naturally, they do not. The contact is with rats and through the rat flea, so that you would not see other associated human cases.

The description, mild typhus, however, is a purely relative term. It is mild as compared with louse-borne typhus, which is a truly formidable disease. It may even be described as mild compared with, say, typhoid fever because of the much longer duration of the latter. It is not truly a mild disease. I would say it probably may best be compared with paratyphoid fever, and I believe it is very often confused with paratyphoid. I have accurate knowledge of two other cases, in addition to my own, and those were sick for quite some time, very sick, and they were all of a year in recovering. I was a bit more fortunate. I was in bed about a month, and some six or eight months in convalescence.

It is generally believed that a great many more cases occur than are recognized or, at least, reported, the assumption being that when they are not reported it is because they are not recognized. The virus is known to be wide-spread.

I rather suspect, in conclusion, that Dr. Seemann got me up here as his exhibit very largely for the purpose of bringing before you the fact that typhus is no respecter of persons. Any person in any walk of life may be attacked. The rat is an ever present menace, and the rat flea may bite even a doctor.

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# SOME PUBLIC HEALTH ASPECTS OF PARASITIC INFECTIONS IN THE SOUTHERN UNITED STATES, WITH SPECIAL REFERENCE TO LOUISIANA*

EARNEST CARROLL FAUST, Ph. D.†
NEW ORLEANS

## INTRODUCTION

In considering the public health aspects of diseases of parasitic origin the physician is confronted with a two-fold problem, namely the reduction or eradication of the causative organism in a particular population group and the raising of the threshold of resistance of the individual against the invading organism. In the Southern United States, and particularly in Louisiana, we are faced with conditions which are at the same time less difficult and more difficult to solve than those in the North. Our climate is more equitable; on the whole we have more sunlight and moisture. In our state crops may be produced throughout the year, food is relatively cheap and heavy clothing is not commonly needed. Certain diseases, such as scarlet fever and possibly measles and poliomyelitis are less severe, and constitutional diseases due to climatic hyperstimulation are less conspicuous than they are in the North. Yet poverty and malnutrition are more common and infectious diseases, such as amebiasis, malaria, dengue, endemic typhus, hookworm disease, ascariasis and other parasitic infections, play a much more important role than they do in the North. Furthermore, the mildness of our climate, without stimulating shock, steps down our metabolism. On the whole, therefore nature is kinder to us, but at the same time places more obstacles in our way to progress.

As a medical parasitologist I propose to consider a few of our parasitic infections in the South, and particularly Louisiana, in the light of their public health implications. The examples selected concern certain of our more common diseases of animal origin or due to animal transmission. While they constitute only a fraction of the diseases with which the physician and public health administrator are confronted, they are all peculiarly important in the South.

## PROTOZOAN AND HELMINTH DISEASE

*Malaria.* It is altogether probable that malaria was present among the native Amerinds before the voyages of Columbus. Powdered Peruvian bark (cinchona powder) was used as a febrifuge in malaria fevers by the Peruvian Indians long before it was introduced into Europe in 1640. Tradition relates that the early French settlers at the mouth of the Mississippi River were obliged to abandon their first hamlet and move up to the vicinity of New Orleans partly because of malignant malaria which prevailed in the former area. While mild tertian malaria existed in the Connecticut valley, in central New York State and in the Western Reserve in Ohio, at no time were the pioneers in the North confronted with epidemics of malignant malaria, such as existed south of the Ohio River from the Atlantic Coast to eastern Texas.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

†From the Department of Tropical Medicine, School of Medicine, Tulane University of Louisiana.

Even as late as the Spanish American War physicians in camps, such as Chickamauga, confused typhoid fever with malaria and many enlisted men died of typhoid in these camps because they were treated for malaria. This was due primarily to the slow recognition and acceptance of the *Plasmodium* in the red blood cell as the causative agent of malaria, although Laveran had announced its existence as early as 1881. It is now known that laboratory demonstration of the specific *Plasmodium,* whether tertian, quartan or estivo-autumnal in type, is the only sound diagnostic basis for malaria. Nevertheless, considerably less than ten per cent of the estimated cases of malaria in the South for the year 1933, based on the expected ratio to malaria mortality data, were reported to state health officers (Faust and Diboll, 1935[13]). In Louisiana the situation is even worse than in most Southern States, since malaria morbidity data are not even compiled in the vital statistics files of the State Board of Health. Calculated on the basis of 200 cases for each death (a minimum expected figure), there were approximately 32,000 cases of malaria in Louisiana in 1932, 85,000 cases in 1933, 74,000 cases in 1934 and 72,000 cases in 1935. Why can we not have the actual figures? Until every suspected case is verified by microscopic blood examination, physicians and public health workers will not know the actual incidence of this infection in our state. Part of the difficulty is due to overwork and part to carelessness, but the real fault lies in the inadequate training, lack of experience and unwillingness to examine blood films for the malaria parasite. Even in mild and chronic infections, where these parasites are relatively few in peripheral blood, concentration methods have been devised, so that in most cases the organism can be readily discovered. The greatest difficulty arises when suspected cases, previous to diagnosis of the organism in the blood film, are given a partial treatment with quinine, which tends to destroy the circulating parasites or to drive them out of the circulating blood. Perhaps the most feasible method of attacking this problem in Louisiana would be to educate the population away from self-diagnosis and self-treatment and at the same time instill in them the need for a blood-film examination for the parasites. If the family physician is unwilling or incompetent to make such examinations, the State Board of Health should provide proper diagnostic facilities for this work, just as is done in some of our sister states, where increased blood-film diagnosis has been bound to result in decreased morbidity and mortality rates.

Preceding treatment it is important to have microscopic examination of the blood to provide diagnostic information not only of the species of malaria parasite, but also of the prevalent stage, whether the actively growing parasite, the segmenter or the gametocyte. A preponderance of the former two types indicates a relatively low degree of host response to the infection, while a large number of gametocytes probably indicates satisfactory host reaction to the infection. Such information is very important in providing an index of the patient's own fight against the disease. Following a somewhat different angle of approach we now have reason to believe that considerable immunity is provided by an attack of malaria against subsequent attacks by the same (i. e. homologous) strain, while no such protection is afforded against heterologous strains of the same species or of other species of the malaria parasite (Boyd and Stratman-Thomas, 1933,[3] 1933[4]).

While the original discovery of the efficacy of cinchona powder in malaria was probably pure chance, the development of various related cinchona alkaloids and derivatives, as well as the newer malaricidal drugs, plasmochin and atabrine, has proceeded as a result of biological tests, particularly on birds experimentally inoculated with avian malaria. Even the testing of such drugs on controlled groups of human subjects may be considered more strictly an experimental procedure than a clinical demonstration.

In 1898 Sir Ronald Ross proved experimentally that *Culex* mosquitoes transmit bird malaria. Almost immediately parallel experiments indicated that the three human malaria plasmodia were transmitted to man by mosquitoes of the genus *Anopheles,* which served as the definitive host of the parasite. These epochal discoveries opened up new avenues of approach to malaria control. All types of such control at the present time are directly or indirectly related to this fact. While the species of anopheline mosquitoes throughout the world were mostly known and accurately described by 1900, the exact relationship to malaria of the several species of mosquitoes of this genus in any particular locality required experimental testing. It was found that all species under comparable controlled conditions did not serve equally well as definitive hosts and transmitters of the infection, and that a good experimental transmitter was not necessarily a common transmitter in nature. Thus in Louisiana *Anopheles quadrimaculatus* is the only known natural source of human infection, although two other anophelines (*A. crucians and A. atropos*), which are good laboratory transmitters of the infection, are commonly found in our State. The close correlation between limestone erosion areas in the surface soil and prevalence of malaria in Georgia and Northern Florida suggest that such a topography favors the breeding of the appropriate species of mosquito, and this is actually the environment which *Anopheles quadrimaculatus* prefers (Boyd and Ponton, 1933[2]). Only within the last five years have investigators been able to perfect laboratory conditions comparable to those in nature, so that the complete life cycle of the malaria parasite in the mosquito might develop under observation (Boyd and Cain, 1932[1]). In Europe it is believed that different races of the same species of mosquito react differently to malaria infection; in the United States no such observations have as yet been made.

In conjunction with the mosquito-phase of the life cycle of malaria parasites, workers have been able to determine why tertian malaria (i. e. due to *Plasmodium vivax*) is distributed endemically in temperate as well as tropical belts, whereas estivo-autumnal or malignant tertian infection (i. e. due to *P. falciparum*) is confined to the warmer regions of the world. Thus the tertian parasite finds an optimum development at a temperature of about 77° F., while the malignant parasite requires an optimum of 86° F. mean average temperature. Since we believe (although we have little actual proof) that malaria mortality is due almost exclusively to infections with the estivo-autumnal parasite, the geographical distribution of these species of malaria plasmodia and their specific diagnoses have additional prognostic significance.

Knowledge of the role played by anopheline mosquitoes in the transmission of malaria constitutes the basis for control measures. Screening of homes and bed-nets prevent anopheline mosquitoes from biting man, particularly at night. Other measures, such as drainage and the lowering of water levels, reduce the breeding of all types of mosquitoes. Still others, such as Paris green and oil spraying and breeding of minnows in water where mosquito larvae develop, have been utilized in attempts to kill the larvae. Finally, certain drugs, such as plasmochin, sterilize the gametocytes in the human blood stream so that they are unable to develop when taken into the stomach of the female anopheline mosquito. It must be emphasized that in any particular area, such as Louisiana, no program based on projects carried out elsewhere, is likely to succeed until it is adapted to our own peculiar needs.

Only a few of the many important public health aspects concerning malaria have been cited, but they prove unquestionably the essential contention of this paper, namely, that such facts form the foundation of this important public health menace in our midst.

*Amebiasis.* This infection is produced by *Endamoeba histolytica,* a simple protozoan parasite which lives primarily in the wall of the large bowel. Although the active stage of the parasite was first discovered by Lösch in 1875, the wide-spread distribution of the infection and its protean characteristics are even today inadequately understood. The cysts of this parasite and their characteristic differences from the several non-pathogenic amebae in the human intestine were first carefully studied during the World War. Although Simon (1909[19]) and DeBuys (1914[8]) reported clinical cases of amebiasis and their comparative rarity in New Orleans, it was not until 1928 (Faust, 1930[10]), when an intensive protozoological survey of a representative cross-section of Wise County, Virginia was made, that the high incidence of amebiasis in the Southern United States was definitely suggested. Since that time workers in New Orleans (Faust, 1931[11], 1933[12]; Faust and Headlee, 1936[15]), Tennessee (Meleney, Bishop and Leathers, 1932[17]), and Atlanta (Dougherty, 1933[9]) have abundantly confirmed the original findings. The efforts of the medical parasitologist, in cooperation with the clinician, have demonstrated that dysentery constitutes only a small part of the entire clinical or epidemiological picture; that there are many chronic cases, in which dysentery or diarrhea may rarely occur but in which constipation is the rule. All such cases, however, have more or less definite intestinal symptoms and frequently have systemic intoxication as a result of the infection. Furthermore, the largest group of all consists of so-called "carriers", who are without appreciable or demonstrable symptoms. Yet both biological and clinical evidence leads us to believe that these amebae are always tissue parasites and that a "carrier" at any time may become clinically ill as a result of the infection in case his threshold of resistance becomes lowered. Most important of all, carrier cases, which are "cyst passers", are the source of infection for other persons, as a result of uncleanliness and of the insanitary disposal of their fecal wastes. In other words, they should be placed by public health officers in the same category as typhoid "carriers". It is conservatively estimated that not less than 5 per cent of the entire population of the United States is infected with this pathogenic ameba, and that in the South the incidence is double, triple or quadruple, depending on the particular locality.

What of amebiasis in Louisiana? As far as I am aware no extensive survey has been conducted in this State, except that carried on in the Parasitology Laboratory of Tulane Medical School during the past seven years, covering a representative sampling of the Charity Hospital population and welfare clinics in New Orleans. While certain groups are particularly parasitized by *Endamoeba histolytica*, it is safe to estimate that 10 to 15 per cent of these charity patients are infected. Since the country population is more heavily infected than the urban areas, a conservative estimate of the amebic infections in the State is 200,000 individuals, at least 80 per cent of whom are "cyst passers" and therefore sources of infection for others. Yet we are treating only persons actually suffering from evident amebic colitis or amebic liver abscess. This is due both to the failure to recognize clinically all but the more severe cases of the disease and to the almost complete neglect of routine fecal examinations of patients, which alone will reveal the presence of the infection in the greater part of our infected population. Moreover, I should be surprised to learn of more than twelve individuals in Louisiana who are competent to diagnose amebiasis in all of its manifestations. Until we know how to diagnose this infection it is futile to treat the cases systematically or to outline a program of control.

Furthermore, at the present time there is no common agreement regarding the exact method or methods by which amebiasis is disseminated, although transmission by food handlers, ingestion of the cysts in drinking water or contamination by flies, are all possible means. Such water-borne epidemics of amebic dysentery as developed in two Chicago hotels in 1933, and as have occurred previously in the Philippines and in Panama before sanitary water systems were installed, need to be distinguished from the endemic spread and maintenance of the infection in a given area. In any event, before public health authorities can adequately handle and control the infection, important additional epidemiological data need to be discovered to provide a basis for prophylactic procedure. In the meantime we are justified in viewing the amebic problem as analogous to that of typhoid.

*Hookworm Disease.* This disease is as old as the human race, but the small round worm which produces the disease was not discovered until 1838, when the Italian physician, Dubini, found the organisms at the autopsy of a Milanese woman. We owe our knowledge of the life cycle of the worm, of its entry into and migration through the body and of its development to maturity in the small intestine, primarily to the parasitologist Arthur Looss, whose experimenal work was conducted on himself and on dogs. Clinically the hookworm was found to be responsible for a profound secondary anemia. The discovery of a separate species of human hookworm in the Western World by Charles Wardell Stiles, from material furnished by Allen J. Smith of Galveston, Texas, and Bailey K. Ashford, of Puerto Rico, opened an important clinical and public health problem which was to produce the worldwide health investigations of the Rockefeller Foundation. The discovery that the "American" hookworm was equally common in Tropical Africa, in Southern Asia and in Melanesia, Polynesia and Micronesia, has offered strong support for the view that the infection was introduced into the Western World with the importation of negro slaves. It was discovered that white patients suffered more severely from the same intensity of infection (i. e. worm burden) than did the negro, and that the anemia produced by the disease was to a considerable degree responsible for the so-called "laziness" of the poor white folks of the South. Using the eggs passed in the stool as a criterion of infection and working for the most part through the schools, public health workers began systematic diagnosis and treatment of cases throughout the South. Thus in a single generation, by means of treatment, sanitary disposal of human feces and educational propaganda the great mass of clinical hookworm infection in our midst has been greatly reduced. How much remains in Louisiana is unkown but at least 5 per cent of the country population is infected. When the machinery and facilities are afforded, it would be a valuable public health project to determine the present-day distribution, incidence and burden of hookworm infection in this State.

In considering chemotherapeutic treatment of hookworm patients the first scienific tests were conducted on man, but the more recent, more efficient drugs were first carefully tried out on experimental animals before they were utilized for human therapeusis. Thymol and chloroform have been supplanted by carbon tetrachloride and tetrachlorethylene, as more efficient drugs, while supportive treatment, including transfusion, liver and iron therapy, are now recognized as important adjuvants in severe cases of hookworm disease.

*Ascariasis.* The large intestinal worm (*Ascaris lumbricoides*) was first found to be a common infection of children of the Southern States during the surveys made by the Hookworm Anemia Commission. The life cycle of the parasite and its migration through the mammalian body was worked out on the pig. It was not until the significance of this work was understood that the clinical importance of the lung stage of the infection was visualized. Its full implications are even today not common knowledge of the clinician. A scientific study of the epidemiology of *Ascaris* infection in the South was undertaken for the first time in 1928. Since that date intensive work has been carried out in Virginia, Kentucky, Tennessee, Mississippi, Arkansas, Florida and Louisiana (Cort 1931[7]; Otto, 1932[18]). It has been found that ascariasis exists most intensively in the hilly clay soil districts of the South, except for a focus in the sugar-cane district of Louisiana and another among the cigar-makers' families of Tampa, Florida. It is essentially a household and door-yard infection and involves primarily children under five years of age. All of these epidemiological findings are in contrast to those of hookworm disease, which is prevalent in sandy-humus soil on the coastal plains of the South Atlantic and Gulf States, and which is not a door-yard but a field problem. From a public health viewpoint the most significant epidemiological discovery in ascariasis is the continuous reinfection of children at play in sites polluted with promiscuous fecal droppings made by themselves or by other children in and around the door-yard. It is a hand-to-mouth infection in which viable embryonated eggs are picked up from the soil day by day, so that these children may have at one and the same time mature and immature worms in their small intestines, larvae just hatching from ingested eggs, as well as larvae migrating through the circulation, lungs and upper respiratory tract into the alimentary tract.

Recently William Hugh Headlee (1935[15]) of my laboratory conducted an *Ascaris* survey in the metropolitan area of New Orleans. In a group of 10,990 individuals an average *Ascaris* infection incidence of 6.6 per cent was found, although in the preschool group the incidence was significantly higher. The family environments of *Ascaris* families showed *Ascaris pollution* of the door-yard in 75 per cent of the localities. Approximately half of the eggs recovered from the soil were already fully embryonated and ready for new infections. The high percentage of viable eggs throughout the entire year was found to be due to our favorable climate, which provides a maximum infection risk from a minimum soil pollution. Economic conditions, inadequate provisions for the disposal of excreta and ignorance of the way in which this infection is acquired, added considerably to the dissemination of the infection. Moreover, under such conditions, reinfection after anthelmintic medication is known to be a frequent occurrence.

Contrary to popular belief santonin is not a satisfactory anthelmintic for the eradication of *Ascaris* and should be replaced by more efficient, less toxic drugs, such as hexylresorcinol.

### ARTHROPOD-TRANSMITTED DISEASES

*Endemic Typhus.* Within recent years no epidemic of typhus fever has been reported for the continental United States. During and immediately subsequent to the World War the study of this disease in Europe indicated that it is a rickettsial infection and that in epidemic form it is transmitted by the body louse, *Pediculus humanus,* var. *corporis.* Foci of endemicity have been known to exist in Europe, Asia, South America and Mexico. In the United States sporadic cases of a mild nature have been reported from time to time, usually under the name of Brill's disease. In the South they have been on the increase within the past decade and have appeared in practically every state from Maryland to Texas. Studies made by the U. S. Public Health Service indicate that today these sporadic cases are practically never louse-transmitted; that they rarely occur in more than one individual of a family, and that the mortality is low as compared with louse-borne epidemic typhus. There is both substantial epidemiological and experimental evidence to indicate that transmission of the infection in the Southern United States is ordinarily effected by the rat flea, that rats serve as the reservoir of the infection and that the murine form of the South is of Mexican extraction.

Introduced from famine-stricken Ireland and by American troops returning from Mexico, typhus fever was first definitely diagnosed in New Orleans in 1843 and 1844. The disease assumed epidemic proportions in 1847 and was a serious menace to the community for a period of seven years, during which time about 7,500 persons suffering from the disease were admitted to Charity Hospital, with about 18 per cent mortality. After this date the epidemic gradually subsided, although burial certificates for New Orleans gave typhus fever as the cause of death in from one to 46 cases almost every year from 1854 until 1880. Endemic typhus was first definitely diagnosed in New Orleans in 1929, with 20 cases and one death recorded from Charity Hospital through 1934*. Similar data from the state of Louisiana as a whole are not available for comparison. It is obvious that at the present time endemic typhus is not the public health problem in Louisiana which it has become in Georgia, where several hundred cases are diagnosed each year from Atlanta and from the Southern portion of that state. Sufficient evidence is now available, however, to justify rat-extermination campaigns throughout this State as a means of control of this disease, just as the same procedure is utilized to keep bubonic plague out of the port of New Orleans.

*Dengue and Yellow Fever.* While these diseases are entirely separate clinical entities, they are grouped together because the virus of each is a filter-passer and because both are commonly transmitted by the same mosquito, *Aedes aegypti,* the "*Stegomyia*" of yellow-fever days. All of us are more or less familiar with the terrible epidemics of yellow fever which visited the Eastern and Southern States during the 18th and 19th centuries, usually brought by boats arriving in our ports from Cuba, Jamaica, Central or South America. We are familiar with the scourge which visited our soldiers in Cuba during the Spanish-American War and with the work of the Yellow Fever Commission, whose proof that the *"Stegomyia"* mosquito was the transmitter of the dread disease, made it possible to stamp out the infection in Cuba and later in Panama. The last epidemic of yellow fever in the United States, which occurred in New Orleans in 1905, was quickly brought under control by health authorities who cleaned up the breeding places of the *"Stegomyia"* and summarily prevented further human infection. Since there are still extensive foci of mild infection in northern South America, U. S. Public Health Service officers scrutinize all ships entering our ports from these endemic foci and also examine with great care the clipper airplanes landing at Miami and Brownsville, Texas. The epidemic of yellow fever in Rio de Janeiro in 1929-1930 indicated the latent danger of such endemic foci. Unfortunately the care exercised today in preventing the introduction of the disease into the country has not been paralleled by comparable "anti-*Stegomyia*" campaigns. In New Orleans, Biloxi, Mobile and other Southern ports the suitable mosquito breeds in large numbers throughout practically the entire year, so that a single suitable human case of yellow fever introduced into any of our Southern ports would provide the potential link in the chain for another epidemic.

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*These data have been made availabe through the courtesy of Dr. E. H. Hinman, of Louisiana State Medical Center.

Mention has been made that dengue or "break-bone" fever is also transmitted by the yellow-fever mosquito. A mild epidemic occurred in New Orleans and Baton Rouge early in 1922. The epidemic of dengue during the summer and fall of 1934 in Miami, Florida constitutes ample proof of the danger of allowing this mosquito to breed. Although dengue is endemic in the South, within the past decade only isolated sporadic cases were reported until July, 1934, when it was estimated that 1,000 cases had suddenly developed in or near Miami. Within a month at least 6,000 cases had developed and the infection had reached Jacksonville. By September the disease was getting under control in Florida but was beginning to spread into Georgia, where several thousand cases were reported in September, October and November, and into Alabama, where more than a thousand cases developed in October and November. The advent of cold weather throughout the involved areas late in November suddenly terminated the epidemic proportions of the disease, which would otherwise have spread radially throughout the entire South. Had the virus been that of yellow fever instead of dengue, thousands of deaths would probably have occurred. I am convinced that the practically uncontrolled breeding of *Aedes aegypti,* the yellow fever— and dengue-transmitting mosquito, in our midst*, with only infrequent, desultory attempts to reduce its numbers, will some day provide a medium for another epidemic scourge of yellow fever, which may reach the proportions of that of 1878, since our present-day population consists for the most part of non-immune individuals.

### DISCUSSION AND CONCLUSIONS

The information presented in this paper has consisted of only a few examples taken from the field of parasitic infections illustrating the basic service which has been rendered the public health worker in providing a sound foundation for the prevention of both endemic and epidemic diseases in our midst. Similar instances might readily be cited from the field of bacteriology. It must be remembered, however, that such basic information, even when available for practical use, can not of itself prevent disease. It must have the moral and financial backing of our legislature, our State Department of Health and the support of every physician in Louisiana. Furthermore, it must be "sold" to the people by every legitimate method of educational propaganda, but particularly through the schools. As a distinguished British medical officer has remarked, "New wine of sanitation can not be poured into the old bottles of antiquated customs and ideas". Disease-prevention can not be accomplished either by theorizing or by police-power, but requires the willing cooperation of the people themselves. A knowledge of the elementary principles of disease, together with the more important agents of infection and their means of transmission, should be taught to every grade, high-school and college student in our state. Every person should be familiar with the sources of infection of our more common diseases, just as were the communities in which the Hookworm Anemia Commission worked two decades ago and as the citizens of New Orleans were at that time of the 1905 yellow fever epidemic. The agents of disease wage an unremitting fight against us. We can only fight back by an intelligent understanding of these organisms, their habits and the practical methods for their control and eradication.

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*Except for the month of February this mosquito has been found breeding throughout the year in several New Orleans cemeteries. (Hinman, 1931).

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## DISCUSSION

Dr. G. F. Fasting (New Orleans): Dr. Faust's standing in the field of parasitology should be so well known that whatever information and comments he provides us must command our attention.

I have endeavored to obtain data that would refute or minimize his statistical report, but I have failed.

Malaria apparently shows no decrease. We still have over 70,000 estimated cases in Louisiana. But why must we go on relying on estimated cases, and have no better criterion than 200 cases for each reported death, assuming that even at death the diagnosis has been correctly made?

Why should we have an estimated 200,000 individuals with amebiasis, and only have as a basis a survey on patients arriving at Charity Hospital?

Hookworm is supposedly with us and is estimated at five per cent of the country population.

How startling to learn of ascariasis in 6.6 per cent of 11,000 individuals, and that the incidence was highest in the pre-school group. The infection results from pollution of house yards, and the New Orleans survey revealed infestation in 75 per cent of premises examined. Quaint and old New Orleans is advertised to the tourist. We pride ourselves on our water supply and port facilities. It might be interesting to know what connection exists between the heavy ascariasis infestation, refuse accumulation, garbage on our streets, and ditches which pass for street gutters.

With regard to dengue fever, Dr. Faust has correctly brought us face to face with a most serious situation in the Southeast during 1934. How impressed are we really about the ever present *Stegomyia* and *Aedes aegypti* mosquito in our state? I would like to make it a matter of record that in the year 1936 we have been warned of the dengue fever danger, and that some day soon we may be called upon to share our responsibilities for inaction.

It seems to me Dr. Faust has left out one item of importance. I should appreciate his telling us how the state of Louisiana ranks in the diseases listed when compared to other Southern states.

Can it be that we are at the bottom of the list? If so, I appreciate Dr. Faust's treating us so kindly, yet the issue must be met.

The findings, as reported, turn our attention to the machinery the public has provided for prevention of disease. Of what is the machinery composed? The State Board of Health, Parish and City Health Officers, Parish Health units, and the State Board of Education. I have no justified criticism to make against any of these departments. I sincerely believe they have carried out their mandate to the extent the legislature has permitted them to do so by laws and appropriations.

However, I have a definite impression that the coordination of activities can be improved, and that very much more can be accomplished by the existing agencies, provided this Society, through a thoroughly active standing committee, devotes itself to the health program of the state.

Dr. Faust has called our attention to peculiar difficulties inherent in our population, but he also states, "carelessness in reporting, inadequate training, lack of experience, unwillingness to examine smears." Dr. Faust does not openly state who is here at fault. Am I right in inferring he means the physicians of the state?

I am not familiar enough to judge this latter point, but I have noted in the Quarterly Bulletin of the Louisiana State Board of Health the meager number of laboratory examinations for malaria and intestinal parasites. The state has provided five laboratories for diagnostic work. Yet their convenience is only appreciated in different diseases. If it can be established that there actually exists among numerous physicians a state of mind refractory to improving diagnosis, or to avail themselves of what the public provides in self interest for protection, we shall need the advice of a psychiatrist and psychoanalyst before we solicit the physicians to help in preventive medicine.

Dr. Faust wants students and children taught the principles of disease, their means of transmission, to have the information "sold" by education to the school. We are doing much of that now, but what share has the state medical society in this?

Suppose we teach all the children the principles which we claim to know. May we not anticipate that a few years hence, when these children join their votes as a power in their communities, they then will say, "Well, why didn't you fellows, who knew all these things, who have the power to vote, influence your parish officials and legislature, do your individual jobs better and in your wisdom create a coordinated plan for prevention and control of epidemic and parasitic diseases?"

Speaking symbolically, we have a machine now, very much like an automobile. The engine is running ("idling," as the mechanic says), but where is the intelligence behind the wheel to give it the best direction and give the speed for maximum and economical performance? Isn't this the function of the Louisiana State Medical Society?

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# PHYSICAL DEFECTS OF CHILDREN OF PRE-SCHOOL AND SCHOOL AGE*

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In the preparation of this paper a review of the annual reports of the Louisiana State Board of Health, Bureau of Parish Health Administration, for the years 1932-1935, inclusive, have served as the basis for the consideration of the defects of children of school age. I wish to express my appreciation to Dr. Todd, Director of the Louisiana Bureau of Parish Health Administration and his staff for their courtesy and cooperation in the furnishing of relevant data.

The annual report of the Louisiana State Board of Health, Bureau of Parish Health Administration, for the year 1932 shows that 66,494 school children were examined and that 48,545 were "found defective" and that the defects found totaled 95,924.

For the year 1933, 65,526 school children examinations revealed 47,522 as "found defective" and 101,544 defects were found in that number.

In the year 1934, 66,654 school children were examined; 46,350 being "found defective" while the number of "defects found" numbered 4,411, the smaller number evidently being due to a change of classification.

In other words over 73 per cent of the Louisiana children examined in 1932 were classified as "found defective"; in 1933, over 72 per cent and in 1934 over 69.5 per cent.

For the years 1932-1934, inclusive, no mention is made of the character of the "defects found." The report for the year 1935 is more complete and specifies these defects and classifies them as "major and minor" and lists the number of cases corrected.

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Diseases of the tonsils, adenoids and teeth appear as the most common defects in the 1935 Louisiana school child. When one considers the number of cases of rheumatic carditis, nephritis, chorea, and so on, found in hospital and private pediatric practice, and which are directly attributable to these foci of infection, it is certainly encouraging to find that these defects have been pointed out to the parents and that a moderate number have been classified as "corrected."

The under or overweight child (10 per cent) without organic disease, occupies a prominent place in the defects enumerated. The nutritional defects, which include obesity, undernourishment, goitre and pellagra, appear to a lesser extent.

Disturbances of vision and hearing have been commonly met with in this 1935 report and a comparatively high percentage of the defects of vision are noted as corrected.

Only a very few cases of childhood tuberculosis are recorded. It is very evident, therefore, that only the marked cases have been classified. Cardiac lesions are recorded more frequently.

Skin diseases, (parasitic and infectious) malaria, including carriers, and hookworm, are noted with a relatively high percentage of correction.

Mental conditions appear infrequently and postural defects as well as the other orthopedic conditions, were not found in this report.

In this decade, we have seen the advent of the "pre-school round-up." These so-called round-ups have been sponsored by the various parent and teacher organizations and conducted by the physicians of the particular community. Their purpose is to point out to the parents the defects present in their child and the immunizations necessary before the child enters school. In order to eliminate abuse, these "round-ups" should be under the strict supervision of each parish or county medical society. Properly handled, a great deal of good can be accomplished with ultimate hope that every child will be physically prepared for entrance into school.

As to the pre-school child, let us first consider him emerging from infancy. Finding the strict supervision of mother or nurse relaxing, he is thrown more on his own resources, while in the first year of life he was taken to a physician for a periodic check-up, and now the physician sees him only during severe acute illnesses. Thus, the pre-school child exposed by greater contacts and changes in temperature, is very subject to the communicable diseases, respiratory infections and to acute conditions of the throat, mucous membrances, and skin. Digestive disturbances are common and bad nutritional habits are formed in this period. Is it, therefore, surprising that 70 per cent of the school children are found defective?

During the past thirty years, the public has gradually become educated to the necessity of "keeping the well baby well." By better prenatal care and the cooperation of parents and physician in handling the infant, the mortality for this period has been sharply reduced.

By more attention being concentrated on the health of school children, the public is gradually becoming conscious of their responsibility to the school child. If reduction in the defects of school children is to be accomplished to an appreciable extent, however, the results will be obtained only by better care and supervision of the pre-school child.

It is very evident that each year the general welfare of the school child is improved. Better school facilities, the issuance of free school books, the immunizations carried out, and the splendid work of the various parish health units have brought about a decided improvement in the school child of this state.

Lucas has stated that only 12 per cent of the population of the United States use public health agencies. The responsibility for the handling of the child thus rests upon the individual physician. He should, therefore, realize his importance as the principal unit in better community health.

In conclusion, I wish to plead for a better understanding between the various health agencies and the individual physician. By their united efforts and the education of parents in having periodic examinations of the pre-school child, let us hope that the large percentage of physically defective Louisiana School children of the 1932-1935 period will be materially reduced in the next few years.

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# CONGENITAL HEART DISEASE

## WITH PRESENTATION OF CASE AND PATHOLOGIC SPECIMENS*

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No clinician of moderate or wide experience has failed to recognize that sometimes it is impossible to establish the diagnosis of congenital heart diease in a newborn, simply because the classical symptoms of the condition may not manifest themselves until the period of late childhood. Clubbing of the fingers rarely occurs before the age of two or three years; dyspnea is frequently not evident until the child begins to crawl or walk; while cyanosis often does not appear until the child begins to indulge in efforts of the runabout.

Though the presence of pallor, cyanosis or limpness in a newborn should direct attention to the possibility of a cardiac condition, one should not lose sight of the fact that these same manifestations may be due to any one of the following widely different conditions, namely:

(1) Primary heart failure, where one finds a newborn presenting rapid respirations and pulse, cyanosis or pallor and no other finding to aid in the diagnosis.

(2) Afebrile bronchopneumonia presenting no other signs except those described above.

(3) Atelectasis.

(4) Cerebral hemorrhage.

(5) Suprarenal hemorrhage or other internal hemorrhage.

(6) Septicemia.

Turning to the matter of physical examination one must remember that an audible murmur may be absent even in severe malformations, while a soft systolic murmur often may be present during the first two or three months of life in infants who never show subsequent evidence of cardiac malformation. To emphasize the thought the writer wishes to bring out, the following practical experience is recounted. Recently in the Charity Hospital of New Orleans autopsies were performed on two infants on the same day. One had died on its fourth day and one on its fifth. Both had shown before death refusal to nurse, lack of muscle tone, and pallor with no other physical signs to aid in the diagnosis except crepitant rales in the right lung of the former. At autopsy it was found one had died of bronchopneumonia, and the other from otitis media and early peritonitis. There was probably septicemia, though no blood culture was made. The first of these had been diagnosed as probable bronchopneumonia and the second as probable congenital heart disease.

In the differentiation of these cases an x-ray of the chest might help to distinguish between heart failure, bronchopneumonia, and atelectasis; a spinal puncture might clarify the diagnosis of cerebral hemorrhage; a coagulation and bleeding time of the blood might help to differentiate internal hemorrhage; while a blood culture would give knowledge concerning septicemia.

Granting that a diagnosis of congenital heart disease has been made, it is often impossible to establish the exact anatomical lesion present. While the exact diagnosis is of great interest to the physician the prognosis is of greater concern for the parents, and fortunately this prognosis may be made with a fair degree of accuracy by observing the response the child makes to the usual reactions of normal life in spite of its handicap. If it thrives poorly, continues thin and under-nourished, although receiving proper care and diet; if it shows fatigue easily and has little resistance to infection; then the prognosis is bad regardless of what the anatomical diagnosis may be.

In order to evaluate properly the status of any case of congenital cardiac defect it is of great value to understand the processes of its development. Congenital heart disease may be caused by an endocarditis due to some intra-uterine infection or it may be due to syphilis, but more often it is due to maldevelopment of the heart itself. Most malformation of the heart may be explained by Spitzer's[1] theory of the development of the human heart.

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I have thought it quite profitable to quote Shapiro's[2] condensation of this theory in an article appearing in the Archives of Pathology in 1930. "In lung breathing animals the basis of cardiac development is the division of the organ into a double heart. In gill breathing aquatic animals, the heart is single, with respiratory and systemic parts lined up one behind the other and with the septums transverse to the stream. Terrestial life and lung breathing bring a requirement for greater systemic energy and for an even far greater respiratory energy. The whole heart grows even beyond its original limits. It must, therefore, bend.

"This increase in development is not uniform. The relatively greater respiratory energy required with lung breathing gives a relatively greater development to the pulmonary part of the cardiac tube. As it begins to compare with the systemic part it lines up beside the latter, so that the two parts, instead of being one behind the other, are side by side. The tranverse septums melt under the increased flow of blood. At first the systemic force is so much greater than the pulmonic that the two streams partly mix and septal development between the two parts is impaired. Such are the conditions of the incompletely divided hearts of amphibians and reptiles. With the relatively greater pulmonic development in mammals the force of the pulmonic blood approaches that of the systemic. The streams no longer admix. Where they flow by each other the pressure is least, and longitudinal septa are allowed to develop. Where other factors disturb equlization of pressure, septal defects develop.

"The right side of the heart is separate from the left. Were it a simple division one side would be completely cut off from the other. Blood to the right side would be aerated by the lungs and go in an endless cycle directly back to the right side. Blood to the left side of the heart would course through systemic channels and return unaerated to the left side with no exchange. Therefore, there must take place a complete 180 degree torsion of the arterial end so that the aerated blood in the pulmonic system may get to the left side of the heart and be discharged from it.

"That such a rotation occurs is seen in the clockwise spiral of the aorto-pulmonary septum. Thus in the definitive heart, as the pulmonic heart trunk descends it swings from behind the aorta around to the left and anterior, reversing, approximately, its distal relation to the aortic trunk. In the phylogenetic development of the human heart the pulmonic system undergoes more changes than the aortic, consequently, we find more development defects in the right side of the heart than in the left."

It is generally accepted that this changing of the heart of the embryo from the unpaired tube into the human heart with its four chambers and well developed pulmonic and systemic systems takes place between the fifth and eighth week of intrauterine development. After the eighth week the heart has the shape and all the parts of the fully developed organ. Any defects in the septa or in the positions of the great vessels must be due to some disturbance in the development of the embryo in the first eight weeks of pregnancy.

We have collected at the Southern Baptist Hospital some specimens of abnormal hearts exhibiting certain of these classical anomalies. Dr. Lawson, who performed the autopsies, has kindly consented to demonstrate two of these hearts and to open the discussion of this presentation.

The first specimen he will show is from a child who died at six months of age. It has a completely transposed aorta and pulmonary artery and a patent auricular septum. According to the theory of Spitzer this heart exhibits a complete lack of rotation of the aortic stem, the aorta remaining on the right side and the pulmonary artery coming from the left ventricle. Without the patent septum life could not have been maintained even for the six months. This patient presented from the first few days of life, pallor with occasional attacks of cyanosis, and dyspnea so severe that it had to be tube fed at all times. The heart was of normal size and had no murmurs nor thrills. A systolic murmur appeared, however, at the age of four months and remained constantly present. The Wassermann was negative. The family history was negative for other cases of heart abnormalities.

The second specimen he will demonstrate shows grave septal defects. This patient lived six months. The outstanding manifestations were pallor, undernourishment and frequent attacks of cyanosis. No murmurs nor thrills were ever perceived. The blood Wassermann gave a four plus reaction. No anatomical diagnosis was made in either of the above cases before the autopsies.

Having stressed the difficulties of diagnosis by physical signs alone, I will give histories of three cases, in two of which we have, with the aid of electrocardiograms and roentgen rays, made tentative diagnoses. In the third we have not ventured to make one even with these aids.

### CASE HISTORIES

The first was seen when he was four months old. At that time he was a well nourished, active infant showing no dyspnea and no cyanosis. Physical examination revealed a loud systolic murmur heard over the whole chest, front and back, but best heard in the third interspace just to the left of the sternum. No other abnormal sounds were heard. The heart was not enlarged and there were no thrills. The electrocardiogram and x-ray were normal. The child is now one year old, in normal health. He never exhibits cyanosis nor dyspnea. I have diagnosed this as patent interventricular septum. The prognosis is good, but a lesion at this site is liable to become the seat of vegetations if the child has infectious diseases.

Patient number two seemed normal until he had an attack of cyanosis lasting several minutes when he was five days old. Physical examination revealed no abnormal heart sounds. X-ray showed heart and thymus not enlarged, and lungs well aerated. There were no twitchings nor convulsions. A diagnosis of congenital heart disease was made with no attempt to classify the lesion anatomically. The child continued to have occasional attacks of cyanosis until he was five months old. Since that time he has been permanently cyanotic and dyspneic on the least exertion. He has had a systolic heart murmur at the base most of the time since he was six months old, but it is not always present. His fingers, toes and even his nose, began to exhibit clubbing when he was about eight months old.

The roentgenogram of his chest at fifteen months presents a heart with the typical coeur-en-sabot shape which we see in cases of right ventricular enlargement associated with pulmonic stenosis. You will note in the second film on the board that the heart is the shape of a boot and where the pulmonary arc should be there is a retraction. The electrocardiogram made at this time indicates extreme right ventricular preponderance.

His blood count is as follows: red cells 9,610,000; white cells 9,250; hemoglobin 107 per cent; neutrophils 30 per cent; lymphocytes 54½ per cent; eosinophils 12 per cent; monocytes 3½ per cent; polychromatophilia four plus; nucleated red cells 2½.

From the x-ray, the electrocardiogram and from the early and constant cyanosis we have diagnosed this as "tetralogy of Fallot," with its pulmonic stenosis, enlargement of right ventricle, patent ventricular septum, and partially transposed aorta. In this case we have a heart where there was only partial rotation of the embryonic aortic stem, and a defect in septal development. The prognosis for reaching adult life is doubtful. We base our opinion on his increasing cyanosis and dyspnea and on his blood count.

Case three was seen first at five months. At that time she was pale and undernourished and exhibited marked pallor and dyspnea. Her heart was enlarged to the right and the left. No thrills were palpable. A loud systolic murmur was heard over the whole chest and transmitted to the vessels of the neck. The pulmonic second sound was loud and snapping. She is now four years old, shows very little signs of clubbing, but has increasing dyspnea and frequent attacks of cyanosis with cardiac pains. She usually falls at these times and cries out, holding her hand over heart. We have not been able to say what the anatomical abnormality is in this case. Dr. Ashman, from the Louisiana State University Cardiac Clinic, has consented to show the electrocardiograms of these cases and to discuss them.

### REFERENCES

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### DISCUSSION

Dr. E. H. Lawson (New Orleans): From a survey of the current literature, it is apparent that congenital heart disease is being more easily recognized today than previously. In the classical work on the subject by Dr. Maude Abbott appearing in Osler's "Medicine" of the year 1925, 850 cases on the subject, collected to date, are reviewed. In the March issue of the American Journal of Pathology, 1935, there are two cases of congenital heart defect, and of the five cases presented by Dr. Crawford two are taken from a series of four obtained during a period of the last ten years, in a series of seventy autopsies of infants and children under six years of age, occurring at the Southern Baptist Hospital, New Orleans. Intraventricular defect, which is the most prominent in the first case mentioned by Dr. Crawford, occurred in 225 of Dr. Abbott's series. A total absence of the intra-auricular septum, which presents a heart with three chambers and which occurs in the second case presented in the essay, occurs in only four of the 850 cases of that series.

The first photograph is that of intraventricular defect and dextroposition of the aorta in the heart of a six months old infant, reported by Dr. Crawford. The second view of the left side of the heart with the intraventricular defect shows the position of the pulmonary artery, demonstated by the location of the probe. With the assistance of Dr. Joe T. Roberts of the Department of Anatomy at Tulane, a diagram showing the circulation in this particular heart is presented. It will be noticed that only a small amount of blood passing through the opening in the intraventricular septum becomes aerated. This explains the cyanosis and dyspnea of this patient. It has been shown by Lundsgaard that visible cyanosis from a right to left shunt does not occur unless at least one third of the venous blood is thrown into the arterial stream. Such a condition evidently exists in this heart where more than one third is thrown into the arterial stream.

The next photograph illustrates the condition known as cor triloculare ventricular, and is the second case presented by Dr. Crawford. In this condition there is only one atrium, the intra-atrial septum having failed to develop. In this photograph may be seen the one auricle and the one opening between this auricle and the two ventricles.

The next photograph shows another view of the same heart in which may be seen the intraventricular defect, with the cordi tendoni of the valves of one side passing through the defect in the septum and attaching themselves to the musculature of the opposite side. In a diagram of the circulation in this heart it will be noticed that the blood from both the pulmonary vein and the vena cava becomes mixed in the common atrium. It is then divided and a part passes to the left ventricle and a part to the right ventricle, but in the defect of the intraventricular septum and the over-riding of this septum by the aorta the blood again becomes mixed and a part passes through the aorta and a part through the pulmonary artery. It may thus be seen that a large portion of the venous blood becomes shunted through the peripheral circulation, producing cyanosis, as mentioned in the discussion of the previous case.

From the essay and the discussion it may be seen that the field on congenital malformation of the heart is very large, extending from a simple patency of the foramen ovale, which is fairly common, to the rare condition of the persistent truncus arteriosis, which is extremely uncommon. The defects may be single or multiple and the diagnosis of such conditions still remains a problem.

Dr. Cecil O. Lorio (Baton Rouge): Just a word in confirmation of what Dr. Crawford has brought out in her most complete paper.

All of us who are interested in children run into these cardiac malformations. We as physicians are interested in the type of malformation present, but, as Dr. Crawford has stated, the patient or the patient's parents are not interested in it, and we as diagnosticians should not pat ourselves on the shoulder because we can make the diagnosis of congenital heart disease, but we should pat ourselves for the ability to tell if the child is going to live a normal life.

I think in the child, just as Dr. Crawford stated, we will have to depend entirely on the functional test, as you do in adults.

Dr. Williard R. Wirth: (New Orleans). There are four groups of congenital heart disease. The distinction must be made however, between congenital heart disease and the presence of congenital abnormalities, because when we use the term congenital heart disease we should mean that the individual has a congenital abnormality which is causing signs of distress as disturbed circulation. On the other hand, there may be abnormalities present not sufficient to produce disturbed circulation, therefore no symptoms or signs. These defects may be sufficient to be recognized and cause disturbance at any one of several periods. They may occur intra-uterine during the fetal life and the circulation be insufficient at that time so as to produce a miscarriage; or they may be recognized by the production of inadequate circulation in the early weeks of delivery, because of the adjustment that must be made extra-uterine the circulation is then inadequate. They may be recognized early in infancy, the first two or three years of life, and another group which may only be recognized during adolescence or early youth.

It all depends, as Dr. Crawford said, upon the requirements that are placed upon the heart and whether or not the defects present are sufficient to cause the registration of embarrassment by these requirements placed on the heart. The signs and symptoms may not be observed until any one of these three extra-uterine periods, and the diagnosis is in proportion.

If a murmur is present without any other signs, it is difficult to know if it is a congenital defect or not.

Another thing is the difficulty in making the exact anatomical diagnosis in these cases. Most of us are hard put and can only say it is a case of congenital heart disease, one difficulty being that these defects occur in groups; there are multiple defects instead of single defects and the signs and symptoms are very confusing.

Dr. Rena Crawford (In conclusion): I should like to thank the men for discussing the paper and bringing out interesting points, and then I wish to demonstrate the roentgenogram of the chest of the second case I reported. The report on this film was "Heart not enlarged, thymus normal size, lungs well aerated." If you will notice you will see that the heart is a typical "coeur-en-sabot" shape, denoting a right side enlargement. The enlargment of the right side has caused a partial rotation of the heart so that we may see two apices the one of the right ventricle and one of the left which has been slightly elevated by the encroaching right ventricle. This roentgen ray was taken when the child was five days old. Here is a roentgen ray of the same chest when the child was fifteen months old in which we see the same "coeur-en-sabot" shape.

This third film is the roentgenogram of the chest of the third case reported in the paper. It shows a general enlargement of the whole heart. This same enlargement was shown in a roentgen ray made when the child was five months old.

# SOME PRINCIPLES IN THE TREATMENT OF FRACTURES OF THE FOREARM*

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The fundamentals of treatment of any fracture can be no better described than by the old rule of the four "R's"; namely, recognition, reduction, retention and rehabilitation. The purpose of this paper is not to discuss recognition; this is only too well known by the medical profession and long ago was made comparatively easy by modern radiographic methods. The author, however, feels that because of the difficulties in obtaining position and of maintaining the position obtained, reduction and retention in fractures of the forearm could well be reviewed.

Reduction of displaced fragments of any fracture is by traction and counter-traction. This reduction can be immediate and in its simplest form can be accomplished by manual manipulation with some form of anesthesia, either local or general, to secure complete relaxation of muscle spasm. Reduction can likewise be obtained by a prolonged method of weights and pulleys or some substitute for the traction of the weight and pulley method. The first form of reduction, namely, immediate, is much to be preferred in treating fractures of the forearm and it is only in cases of compound fractures or cases of marked comminution that weight and pulley should be considered. To apply correctly immediate traction and counter-traction, it is necessary to understand the muscle actions in the forearm and their relations to the bones with which we are dealing.

It therefore must be recalled that we are dealing with two bones; namely, the ulna and the radius. The ulna can be considered a continuation downward of the humerus, with the radius a continuation upward of the hand. These two bones are held firmly together by a dense fibrous band of tissue called the interosseous ligament. The ulna is the fixed bone, it moves only at the elbow joint in the motions of flexion and extension of this joint. The radius is the movable bone, it rotates around the ulna in the motions of pronation and supination of the forearm. Pronation and supination of the forearm occur at the upper and at the lower radio-ulnar articulations.

The muscles which influence these movements are not numerous, but their intricate pulls make the situation comparatively complex because of the positions into which the forearm moves; namely, elbow flexion and extension and true forearm pronation and supination. Muscle spasm accompanies all fractures with displacement. Muscle spasm is nature's attempt at splinting. It is an attempt by muscle contraction to immobilize or fix the broken bone ends so as to prevent further pain. It must also be remembered that the muscle contraction usually controls and fixes the proximal fragment and any attempt at reduction must aim to place the distal fragment in alignment and position with the proximal fragment which is held firmly by the altered muscle pull.

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### FRACTURES OF THE OLECRANON PROCESS

The triceps muscle is attached to the olecranon process and is the muscle which pulls the forearm into extension. A fracture of the olecranon process is naturally associated with displacement of the proximal fragment upwards by a contraction of the triceps muscle. Reduction of this fracture is by elbow extension and in this manner a fair percentage of the olecranon fractures can be satisfactorily treated. A moulded plaster of paris splint holding the elbow in this position is easily made and the general care after position has been obtained is the same as in treating any type of fracture. When this position of extension does not give satisfactory reduction, an open operation with wiring or tying of the fragments is necessary and should be done without undue delay.

### FRACTURES OF THE RADIAL HEAD

Fractures of the radial head are very disabling because of the interference with forearm pronation and supination. These motions occur at the upper and lower radio-ulnar articulations, and since the radial head is the major factor in the upper articulation, it results in marked interference with this motion when the fracture occurs in this area. This type of fracture should be reduced early and as completely as possible. Reduction can often be accomplished by finger pressure and can be maintained after once accomplished by a moulded plaster of paris splint which will hold the arm and forearm in a position of elbow flexion. When it is impossible to obtain reduction, it is often necessary to do an open operation, in which instance, it is better to remove the fractured radial head than to attempt reduction. Removal of the head does not cause disability.

### FRACTURES OF THE UPPER FOREARM

In dealing with fractures in this region it is imperative that the positions of pronation and supination be considered. In the position of supination, both ulna and radius are widely separated. In the neutral position or the mid pronation-supination position which is halfway between pronation and supination, these bones are farthest apart. In the position of pronation, on the other hand, these bones are almost in contact with each other. It is therefore logical that fractures of the forearm should never be placed in the position of pronation, because the closeness of these two bones favors fusion. This bony union called synostosis, would lead to permanent disability by preventing motion of the forearm. The biceps muscle attached to the radius at the radial tuberosity is the chief flexor muscle of the elbow; it is likewise a strong supinator muscle. The supinator brevis muscle attached to the outer surface of the radius at its upper third aids markedly in the action of supination of the forearm. The supinating action of the biceps muscle and the supinator brevis muscle is neutralized only by the pronator teres muscle which is inserted into the radius at a point corresponding to the junction of the middle and upper thirds, which is below the attachments of the supinator brevis muscle. From this it is evident that any fracture of the radius alone or of the radius and ulna together occurring in the upper third of the forearm, results in a position of marked supination of the proximal radial fragment. To obtain and maintain reduction, it is therefore necessary to align the distal with the proximal fragment. This can be done only by placing the entire forearm in the position of complete supination with the elbow flexed to a right angle. This position can be comfortably maintained by using anterior and posterior moulded plaster of paris splints which include the lower arm, the forearm and the hand.

Fractures of the radius alone or the radius and ulna together occurring below the insertion of the pronator teres muscle, which is the neutralizing muscle in this area, result in a proximal fragment which is influenced by this muscle. The proximal fragment is no longer in the position of extreme supination as described above but because of the influence of the pronator teres muscle, this fragment is in the neutral or mid-pronation supination position. Consequently, this type of fracture must be reduced and maintained by keeping the forearm in the position of mid-pronation supination.

### FRACTURES OF BOTH BONES OF THE FOREARM

Fractures of both bones of the forearm occur fairly frequently in children and are usually found in the lower two-thirds of the forearm. They are often of the green-stick variety without marked displacement but with extreme angulation of the fragments. Where displacement occurs, it is very difficult to reduce both bones unless one forgets that he is dealing with two bones and treats the reduction as if one bone were present. Manual reduction, using traction and counter-traction, then extension to engage the bony ends and finally flexion to a straight line often gives satisfactory position.

The modern shock-proof portable x-ray units with their daylight fluoroscopic screens which can be attached to the head of the operator, allowing him the use of both hands, are an excellent adjunct in reducing this type of fracture and very often are a deciding factor between an open and a closed reduction. Reduction is best maintained by applying a sugar tong moulded plaster of paris splint with the forearm in a neutral position and the elbow flexed to a right angle. Open reduction of this type of fracture is occasionally necessary when other methods have failed.

### FRACTURES OF THE LOWER FOREARM

The most frequent disabling fracture of the human skeleton is the Colles fracture. A Colles fracture is a fracture of the lower end of the radius with or without a fracture of the styloid process of the ulna. Colles fracture results from indirect force and is usually caused by a fall on the outstretched hand. During the early days of the automobile when self-starters and gasoline engines were not perfected, necessitating cranking of motor cars, this type of fracture was more often seen and was often referred to as a Ford fracture. In this fracture there is a posterior or dorsal displacement of the distal fragment, usually with a deviation of the hand to the radial side because of the loss of support on that side. This fracture clinically presents the typical silver fork deformity. No special group of muscles influence the deformity, the flexor and extensor muscles of the wrist, hand and fingers retain the displacement and the loss of bony substance by compression dorsally or the line of fracture favors a ready redisplacement if the correct position is not maintained after reduction. The reduction of the Colles fracture is simple. Under anesthesia, either general or local, by means of traction and counter-traction, extension to engage the ends and finally flexion of the wrist, associated with ulnar deviation and pressure on the fragment ends by the thumbs of the operator, a ready reduction is accomplished. The fracture is invariably reduced to a complete anatomical position. When reduction is once obtained, it is necessary to maintain the position of wrist flexion and ulnar deviation so as to prevent redisplacement. This position is known as the Cotton-Loder position and fixation is best accomplished by applying anterior and posterior moulded plaster of paris splints. Wooden splints are thoroughly inefficient; first because of their inability to obtain this position and secondly, because they loosen too easily and consequently do not maintain any position.

The forearm now held in the Cotton-Loder position is carried in a sling and circulation of the fingers is observed. Any interference with the circulation should cause an immediate removal of the fixation. Circulatory interference in the forearm can cause Volkmann's ischemic paralysis. Volkmann ischemic paralysis is a grotesque permanent disability and all precautions should be taken to prevent its occurrence. At the end of two weeks, in the average individual, the author has followed the routine of removing both splints without anesthesia. The wrist is now brought into a straight line and with no traumatism or jarring, anterior and posterior moulded plaster of paris splints are applied holding the forearm and hand in this position. One week later both splints are removed. The posterior splint is permanently discarded. The palmar splint is padded, using a piece of cotton felt held into the splint by adhesive plaster. The splint is replaced and is held in position by the use of an ace bandage. The cotton felt forces the wrist into extension. If desired, from this point, the patient can be seen every day or every other day by the physician. Infrared therapy can be applied, massage used and the splint replaced with additional pieces of felt added to obtain the desired cock-up position of the wrist. If patients are intelligent, or where it is impossible for the patient to go to the physician's office frequently, hot and cold soakings, using buckets, one with very hot water, the other with cold water (ice being added if necessary) can be ordered daily. The splint is removed, the forearm and hand is immersed into the hot water for five minutes and then into the cold water for two minutes. It is replaced in the hot water for another five minutes, back into the cold water for two minutes and for a third time alternating with the hot and cold. While the hand is in the water, the patient can move the fingers and wrist actively. After the last cold immersion, a light alcohol massage can be used and the splint replaced using the ace bandage each time. At the end of five or six weeks in the average patient, the anterior splint may be discarded and light work may be resumed. In older patients, it may be necessary to continue fixation for a period of several additional weeks. Occasionally, it occurs that circulatory balance does not return with the removal of the splint at the end of the five or six weeks and the author has found that the mere application of the ace bandage without splinting acts very satisfactorily.

The complete treatment of Colles fracture has been described because of the bad cosmetic and functional results which are often seen after its treatment. It is the author's opinion that in this section of the country these bad results are probably caused by lack of proper fixation in the proper position to maintain reduction. The moulded plaster of paris splint and the Cotton-Loder position of wrist flexion and ulnar deviation cannot be too emphatically stressed. If more consideration is given to the treatment of this fracture, I am quite certain that the statement of Mr. Harry Platt, orthopedic surgeon of Manchtser, England, can easily be the mecca for all Colles fractures. Mr. Platt stated "that it should be possible to guarantee to all patients with a Colles fracture a well nigh perfect anatomical and functional result."

## DISCUSSION

Dr. E. S. Hatch (New Orleans): First, I want to say that this demonstration has been a very admirable one. It shows up the condition exactly as we see it.

The changes I would like to suggest are these:

I saw a patient who had been treated by a general surgeon about three weeks—a foot-ball player. His right elbow was in a position of right angles, and examination showed the olecranon process of the ulna had been fractured. Skiagraphs proved this, and, of course, it should have been put up as Dr. Simon has explained to you in his paper. We had a good deal of trouble in getting that arm down, but did get the fragments within possibly as eighth of an inch of each other. I put the arm up in plaster, in extension, and nature was kind enough to fill up the gap, and give us solid bony union. The boy has a perfectly normal right arm today.

Another thing I would like to disagree with Dr. Simon on (and I am not saying it in any mean way at all), is the hot and cold water. This should be given—hot, cold, hot, cold—one immediately following the other, instead of hot five minutes, and cold two minutes. In other words, the change from hot to cold should be instantaneous.

Other than that, I think all he has told you is absolutely correct, and beautifully shown. I do not remember having seen a series of pictures, of this type, which have shown the condition so well.

Dr. T. M. Oxford (Shreveport:) I have thoroughly enjoyed this paper given by Dr. Simon.

I want to mention a fracture which I have labeled the embarrassing fracture dislocation for the reason that the dislocation is often overlooked, the fracture occurs in the upper third of the ulna, not including the olecranon, with overriding fragments. This particular fracture is often treated by the general practitioner who takes it to the roentgen ray man and says, "Doctor, take a picture of that boy's arm. He has a fracture about the middle of the forearm." The roentgenographs are made as called for, oftentimes overlooking the dislocated head of the radius above. Imagine the doctor's chargin two or three weeks later when he takes the cast off the fracture is united. But the patient extends his arm and says, "What is the knot doing in my elbow?" This is the dislocated head of the radius that oftentimes is associated with this type of fracture.

We have had a matter of five or six cases in the past year that have been treated in this manner. For this reason I want to call it to your attention.

Dr. J. E. Walsworth (Monroe): In fractures of the forearm, there are three points as a general surgeon I would like to emphasize, which Dr. Simon brought out in his discussion.

First, is the correct interpretation by clinical and radiological examination of the definite fracture point. This is the first time I have heard presented in the South, the importance of said definite interpretation of fracture point as a guide in the fixation position of the fragments. I would have you study again the significance of Dr. Simon's teachings, since all of you who have had experience have observed patients coming in with fractures of the forearm, improperly treated, and resulting functional incapacitation.

Emphasizing the subject further, the first essential in all fractures is to save the life of the patient; second is to save the extremity; third, reduce your fracture by extension and counter extension; and fourth, is to have it immobolized until absolute healing has come about.

Emphasizing a further point in the reduction of a fracture, you must remember that the distal fragment must always be placed in the position that the central fragment points, no matter what position that may be. In fractures of the radius in the upper third, the proximal fragment is always found in supination, and, therefore, the forearm, wrist and hand must be fixed in the position of supination after proper reduction of the fragments; or, if you should place a fracture of this type in pronation you would certainly have it twisting on the axis, and have ultimate loss of the supination function.

In fractures of the radius, below the insertion of the pronators, the proximal fragment is found in mid-position and the fixation after reduction must be likewise in mid-position and so on down the line as Dr. Simon has so ably presented.

Now, another point I want to introduce and that is the use of interfragmental analgesia, a term coined by Lorenz Bohler of Vienna, Austria—and simply means this: In every fractured area there is deposited between the bony fragments, and within the surrounding tissues, depending on the amount of trauma or injuries to said tissues, a definite hemorrhagic serum—a serum that is most irritating to the nerve filaments, producing therein pain and at times marked muscular spasm, which in turn results in displacement of the bony fragments and occasional overlapping. This said serum and associated muscle spasm, and pain causes the patient much discomfort, and even with general anaesthesia many difficulties in proper reduction of said fragments, whereas, if you will equip yourself with a simple 10 c.c. syringe, hypodermic, 10 to 40 c.c. of two per cent novocain, 10 c.c. of normal saline solution, with a hypodermic needle sufficiently long and large to reach into the depth of the interfragmental area, you will be in position painlessly and easily to mold those fragments back into their normal relationships.

Note this, sterilize a small area nearest to the fracture line, paint it with tincture of iodine, introduce your needle gently but definitely into the interfragmental space, attach your syringe filled with normal saline solution, inject a few c. c.'s of said solution into the interfragmental area, detach your syringe, and you will notice the normal saline solution will now come back through the needle as a colored solution—it having dissolved the blood clot of the area. You will notice further that the point of the needle is not within the larger vessel (artery or vein) because if it were you would have the definite bright blood coming back. Therefore, having confirmed your position, reattach your syringe loaded with the two per cent novocain, inject from 10 to 40 c. c. according to the size and age of the patient, into this area, the said analgesic solution will then permeate every avenue of the tissues which have been previously permated by the blood with serum resulting from said injury—changing the irritating blood and serum to an analgesic solution, thereby relieving the pain, relaxing the muscle spasm, and permitting easy, gentle, but definite approximation of the fragments and molding them back into their normal positions. The said analgesic effects will last sufficiently long for permanent fixation of the extremity.

Referring to the fixation, I feel impelled to call your attention to the advantages of the non-padded plaster of paris molded splints, and while I shall not describe the application of said fixation, I would ask that you study the original Bohler method to the end that your diagnostic studies which Dr. Simon has brought to you with his technics of reduction, so wonderfully presented, may be correlated to the ultimate functional restoration of an otherwise tragical situation.

Dr. H. T. Simon (New Orleans): In closing, I wish to thank my two Fellows in orthopedics, Drs. A. Scott Hamilton and Charles L. Farrington, and Mr. W. H. Stewart, medical artist at the university, who have materially assisted me in making this picture.

# MANAGEMENT OF RUPTURES OF THE OSTERIOR URETHRA:

## WITH REMARKS CONCERNING ALKALINE URINARY INFECTIONS*

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For the purpose of this study, ruptures of the deep urethra are classified as produced by:

A. Pathologic conditions.
  1. Rupture of abscesses in Cowper's or suburethral glands.
  2. Strictures, causing back pressure of long duration.

B. Traumatism.
  1. Puncture wonds by missels, instruments.
  2. Straddle injuries incurred in falls.
  3. Crushing forces and violent impacts, which are usually associated with fractures of the pelvic, and other bones.

### CASE REPORTS

Case 1. White male, aged 30, married. Gonorrhea three years before. Multiple recurrences, multiple fistulae, pointing at various times, and in different locations along left perineum from scrotum to coccyx. Gonococci present in smear. Agglutination positive for undulant fever. Recurring chills, fever, sweats, with general aching and local pain, had been uninfluenced by self administration of a great deal of quinine.

Treatment: Gonorrhea cured. Brucella vaccine given, with marked reaction thin pus was cleaned out of left ischeo-rectal space and the whole cavity loosely packed with mercurochrome soaked gauze, extending clear through from Cowper's gland to counter puncture to left side of coccyx. The urethra was later dilated with flexible bougies. Completely cured. Good stream, no fistulae, no more suppuration.

Fred Angle of Kansas City, has studied more than 100 cases of brucellosis, a few of whom with suppurative processes, were resistant to treatment until their suppurating conditions were cleared up.

Case 2. Puncture wound. Colored male, aged 41, married. Gonorrhea, strictures, followed by urinary infection and prostate abscess with acute retention. A negro doctor attempted catheterization with a metal instrument, punctured bulbous urethra, penetrated perineal tissues. Patient seen in shock, dome of bladder extended above the umbilicus. Thin, dark, foul smelling fluid, and a few small black clots escaped from the meatus. Left perineum bulging. Bladder, perineum, urethral tissues drained as described later on. Died next day.

Case 3. White male, aged 52, widower. Fell across back of chair while hanging window shade. Made no attempt to void but called doctor immediately. No bulging in perineum. Soft rubber catheter passed easily into bladder and tied indwelling for two reasons: first, splinting effect; second, to serve as a conduit for urine and avoid contact and contamination of lacerated tissues. Uneventful recovery.

Case 4. White male, aged 30 years, single. Riding a freight train Armistice night, lay down in short space between a load of oil casings and the end of box car. After starting, the engine suddenly stopped and went into reverse. This shifted the load against his hips, crushing the urethra against sharp edge of ramus of the pubis, rupturing the former and fracturing the latter. I saw him before breakfast next morning. Blood escaped from the meatus, bladder dome almost reached the umbilicus. He had not urinated since the injury. Drained as described later. No attempt to repair urethra until eight days later, when it was found that a soft rubber catheter could pass easily into the bladder. It was tied indwelling, and all surgical drains dispensed with as soon as wound healing would permit. Recovery was physiologically perfect, but convalescence was aggravated and rendered offensive by alkaline infection. It did not occur to us at the time to employ the treatment which will be described later, so this boy emitted the pungent aroma of ammoniacal decomposition until discharged from the hospital.

### HISTORICAL INTRODUCTION

Skill and efficiency are necessary to guide our efforts in the direction of ultimate perfection, but they must be attended by discretion and simplicity, if their successful realization is to afford the most good to the greatest number.

The history of this subject during the past hundred years records many plans for the cure of this calamity which are almost as varied as they are numerous, and in the literature at least, unanimity of thought and action seems to have been arrived at only during the last few years.

Brief reference will be made to the work of a few master surgeons who boldly abandoned the cumbersome tools of bone and belly operators, adopted the fine and delicate equipment of the eye surgeon, and wrought plastic repairs of the male perineum by methods which were as elaborate as they were complicated. More detailed consideration will be accorded sound urologic methods of the present time which will obtain the physiologic requirements of comfortable, efficient urinary drainage, and yet are sufficiently simple in their surgical application to permit the average urologist to employ them with confidence.

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The first complete resection of the urethra without any attempt to suture the ends together, was done by that worthy Southern surgical teacher, Dugas[3] of Augusta, Ga., 1836. Heusner[4], [5] was the first to attempt suturing the ends together, in 1882. This led directly to later attempts made by Koenig in Germany, to resect all cicatricial areas found in the urethra and join the ends together with sutures. Similar attempts were made by Guyon[4] and his pupils, Albarran, Legueu, and Marion at the Necker Hospital in Paris. The height of ingenuity was shown by those who attempted the use of grafts from the skin of the perineum, scrotum, prepuce; a pedicle flap of dartes, or fascia; the mucus membrane from a prolapsed uterus, tubal insertions of large mammalian veins or appendices, sutured in place over a catheter.

The latest report of this work was made by Scholl, Braasch and Long[5] in 1922. It seems to have been generally unsuccessful.

The use of a catheter only as a proper splint for supporting the ends of the ruptured urethra was under debate during the gay nineties. Duplay[5] used it in selected cases, Kaufmann rejected it entirely because of sepsis.

Coming closer to our own time, outstanding contributions were made to this subject by Maximilian Stern[6] of New York, Hamilton Russell[4] of Melbourne, and Granville McGowan[4] of Los Angeles. They excised and resected cicatrices radically and completely, did plastic repairs extensively, employing about all of the anatomic elements of the male perineum. Exclaimed the masterful McGowan: "I know of nothing in surgery that is quite so disgusting as to see an operator messing at a stricture with inadequate and unsuitable tools, destroying by clownish gestures whatever favorable chances the subject may have of recovery from his terrible disease."

This was in 1923, and at the same time another Californian, Miley B. Wesson,[7] published the most accurate, scholarly, and comprehensive anatomical studies of the fasciae of the male pelvis and perineum that have ever been made. I am aware that Abraham Colles,[7] of Dublin (1800) and Gordon Buck[7] of New York made isolated references to these structures, but for complete and coordinated consideration of this entire anatomical region, Wesson has nowhere been equaled. This anatomical knowledge enabled White and Ritch[8] in 1927 to clarify the locations of surgical "points" for extravasations after urethral rupture.

The genius of present day urologic surgery is perhaps reflected nowhere with greater brilliance than in the manoeuvers now being employed to secure urinary continence. The Goebell-Frangenheim-Stoeckel[5] operation has been devised. Abeshouse[9] of Baltimore, Deming[5] at Yale and others have employed, usually with success, tissue transplants of either muscle or fascia, and consisting of rectus, pyrimadalis, levator ani, gluteus maximus, adductor magnus, and gracillis.

When the gracillis is used, the patient may learn to start and stop the urine by abduction and adduction of the thigh, thus imitating that renowned canine reaction of the thigh, which is certain to be stimulated by the sight of every telephone post.

A rupture in the deep urethra is a serious calamity. Physiologically, the best time to begin treatment for it is before the next urination would ordinarily occur. The opportunity for instituting successful treatment will not be so favorable at any subsequent time. This discussion will refer to possible shock only by stating that the gravest hazard always demands first attention. The further solution of this problem requires the application of different principles in three phases:

1. Immediate, or drainage phase.

2. Intermediate, or control of infection phase.

3. Ultimate, or repair phase, with recovery of physiologic micturition.

1. The degree and duration of morbidity, as well as the rate of mortality will depend entirely upon the correct management of the im-

mediate phase. If treatment is too long delayed, or improperly carried out it is sure to result badly. This implies drainage in its most comprehensive significance. Drainage of the bladder and all extravasating areas, but most important for physiologic restoration, drainage of all damaged tissues about the deep urethra. Efforts at repair have no place in first phase treatment. They are pathologically not feasible, surgically unsound, and physiologically unsuccessful.

I believe like Martin[10] of Los Angeles that primary repair of these urethral tears has been overstressed; that primary suturing is ordinarily unnecessary and superfluous since they seldom hold; that nature will repair the damage in nearly every case if drainage is ample from every area, especially from the tissues surrounding the deep urethra. This is neatly and quickly accomplished by carrying a Guiteras staff down through a suprapubic opening, into the bladder neck and out through the bulbous urethra.

An incision is made over the point of the staff where it appears in the perineum, a catheter is attached and drawn backwards into the bladder where it may be fixed in the location desired by means of a linen suture. A medium sized Pezzer is then put into the bladder through the suprapubic opening, and the wound closed after leaving a tissue drain in the space of Retzius, and Dakin tubes for use during the second phase if desired.

Culver's[11] plan is similar to Martin's, with this variation which applies especially to straddle injuries. He passes one Guiteras or Hagner sound into the urethra, and another retrograde. Manipulation brings the tips of these two sounds together, and the urethral sound is made to follow the retrograde sound into the bladder. A good sized catheter is now tied on and the sound withdrawn, leaving the catheter fixed indwelling. This reestablishes drainage, mainmains the continuity of the urethra, forces the two layers of the triangular ligament into their proper relative position, and supplies a bridge for control of the newly formed urethral mucosa.

All are agreed that treatment should begin immediately after injury; that early, even premature incision for drainage of the periurethral tissues is better than one done too late; that the exaggerated lithotomy is a dangerous posture for any immediate phase operation because urethra or bladder may become further injured by fractured ends, or spiculae of bone; that treatment should be applied in separate stages suitably spaced; and finally, that delicate surgical judgment is required in selecting the optimum time for ultimate phase revision. It must be late enough to permit swelling to disappear, infection to be controlled, and the patient to recuperate, yet early enough to anticipate dense fibrosis and permit a neat urethral anastomosis.

2. The intermediate phase may ensue within the next few hours, to continue on through the control of infection, a period of from one to two weeks or more. About 1860 Pasteur[12] discovered that a staphylococcus which he called Micrococcus ureae, could split up urea into ammonia and $CO_2$, resulting in the formation of ammonium carbonate. Sarcina pulmonum is also a urea splitter, and in New Orleans the Bacillus proteus is considered to be the usual cause of alkaline infections.

Our attention was directed to this question in 1925 when an epidemic of 36 cases of alkaline infection of urinary sinuses occurred in Johns Hopkins Hospital. Thompson began studies to learn the cause of this outbreak but died, and the work was concluded by Shaw and Hill[14].

They incriminated a Gram positive diplococcus which they named Choryne-bacillus thompsoni in honor of their predecessor.

This group of alkali producing organisms are not susceptible to the usual germicides. The odor immediately disappears, and the germs seem to be exterminated after a few days, treatment with 5 per cent acetic acid dripped into the wound through small tubes. After this 2 per cent chlorazine may be used for any other form of infection, when present, through the same set up as in Dakin treatment. Alkaline infection has been a menace in urologic surgery, even when it did not become serious.

At the American Urologic Association meeting last summer, I heard Davis'[15] paper, and saw him operate, demonstrating a new method of closing bladder incisions, and employing the principles brought out by the Hopkins Hospital group ten years before.

Last month I removed stones from an incontinent and intolerant bladder. There was no urine, but a small amount of amorphous substance of the consistency of buttermilk, was found with the stones. A cystogram was impossible for the fluid would not go in, and even under anesthesia, the bladder would not hold 10 c.c. It was heavily infected with a Gram positive diplococcus. Davis' technic was carried out. The odor promptly disappeared and the organisms were gradually eliminated. Several days later I went to bed with influenza. On returning to the hospital I found the Pezzer sanded up and ammoniacal odor present. Chlorazine had been substituted for acetic acid in the meantime. Dirty gray membrane and flakes were in the wound which was painful. The tube was opened, acetic drip resumed, and the alkaline infection promptly cleared up. Two weeks after admission the patient was discharged, sinus still draining, but clean and odorless.

3. After a brief interval for recuperation the hitherto torn and traumatised urethra will arrive at the ultimate phase of treatment. This will consist of the passage of flexible bougies to about 28F. and probably a Kohlman dilator for a few sizes beyond. Patient should return for recalibration occasionally for about a year.

If it were possible to secure conformity with the simple airflow smoothness of the above outlined three phase program in every case, this would indeed be a unique contribution to urologic surgery, but a perfect plan to fit every case will never be achieved. Cases will continue to occur due to delay and mismanagement, or because considerable damage to either the urethral channel or its blood supply has produced sloughing and necrosis, with extensive cicatricial coarctation, which will demand the proper form of surgical repair. When this necessity arises, the wise doctor will do well to consider both the patient and his tissues. He will distribute the risk involved over a period of time which will enable him to improve the condition of the tissues and also to increase the vital reserve of the patient. No business executive would immediately assume the complete retirement of a financial obligation incurred for any major public benefit. He would arrange to meet the obligation in convenient installments over a suitably prolonged period of time. This condition requires bonded surgery on the installment plan. Prostate and kidney surgery have been made reasonably safe undertakings by spreading the hazard over two or three separate stages. This doctrine has never been dramatically promulgated for traumatic surgery of the male perineum and deep urethra. We know that when we adopted these principles for doing prostate and kidney surgery, we began a new era of safety and contentment. When we apply them systematically to ruptured urethras and extravasations, we will reduce the duration and degree of morbidity and the rate of mortality, and increase the proportion of both physiologic and vital recovery.

## SUMMARY

1. Ruptures of the deep urethra are classified.

2. Conditions discussed are illustrated by five case reports.

3. History of urethral repair work is briefly recited.

4. The appropriate management for ruptures in three logical phases, is given in detail.

5. The importance of drainage in advance of bloody infiltration, or extensive urinary extravasation is indicated, and the necessity for physiologic, as well as vital recovery is emphasized.

6. The conclusion is arrived at, that the same principles of interval operations in separate stages, which made prostate and kidney surgery tremendously safer, are similarly applicable to traumatic surgery of the deep urethra, and should be adopted for work in this region also.

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## DISCUSSION

Dr. John G. Pratt (New Orleans): Traumatic rupture of the urethra is seen frequently in the Charity Hospital. We get these cases that are injured in everyday life, straddle injuries of the perineum with rupture of the urethra, and we get them where the urethra has been rupturd by doctors in the passage of instruments.

Most frequently, however, when rupture of the urethra occurs it is not until extravasation occurs that we see these cases, which is very bad inasmuch as when extravasation occurs the tissues become infiltrated with urine and the infection usually occurs at the site of the extravasation. If we could get these cases early or immediately following the injury—and injury to the urethra can easily be told by the hemorrhage which occurs from the urethra—by diverting the current of urine from the urethra by suprapubic drainage we can save extravasation of urine into the tissues.

The use of a catheter as an indwelling catheter in the urethra, if a catheter can be passed, only puts off the extrasavation of urine, because it will occur when the catheter has been removed if the urethra has been torn or ruptured. I had this very forcibly impressed upon me several years ago, where a urethra had been torn by the passage of an instrument and the man came in with hematuria. I put a catheter into the bladder and left it in as an indwelling catheter for a period of seven to ten days. On removal of the catheter, the man had a chill, high temperature, and the next day when I saw him he was extremely sick. I thought he had an ascending infection of the kidneys. No sign of extravasation of the urine was present in the perineum. The following day he was dead. He had a retroperitoneal extravasation of urine. This man's life could have been saved if suprapubic cystotomy had been done on him and the urine diverted from the urethra.

So immediate attention to these cases is absolutely necessary in order to prevent extravasation of urine and to maintain the tissues about the ruptured area, or the urethra, in good condition so that repair of the urethra will be much simpler later on.

The placing of a catheter to splint the urethra can be done with fair ease at times, and at other times is quite difficult, particularly if there is much hemorrhage around the torn urethra.

These cases usually develop strictures no matter what you do. They usually turn up with a stricture which may come on in anywhere from a year to ten years after the rupture of the urethra. If there has been much infection in the perineum, these strictures are very dense and very hard to handle, and hard to keep open by dilatation.

Infection of the tissues following rupture of the urethra is very common. It usually occurs following extravasation. Alkaline infections, which we get in a certain number of the cases we see, is a very mean type of infection which delays healing and is hard to combat. We are using every method we know of today to try to overcome alkaline infections, and sometimes we think we are rather successful and other times we think we are very unsuccessful. We are using acetic acid to acidify the urine, as organisms like alkaline media to live in. Acetic acid does help for a time, but it does not cure alkaline infections all the time.

Dr. D. C. McBride (Alexandria): I would be taking up the time of this Society to attempt to discuss Dr. Foster's paper, as I am certainly not competent to discuss it. I think he really asked me to discuss his paper because I referred three or four cases to him.

There is one thing for which we in Alexandria owe Dr. Foster a vote of thanks. We have one small hospital up there, and Dr. Foster treats his cases in this hospital.

Dr. M. H. Foster (Alexandria): On the discussion made by Dr. Pratt today we are all in accord.

I appreciate the remarks Dr. McBride made. I am reporting in this paper the treatment of one case to which we thought at one time we would apply the work done in the Hopkins Hospital and the surgical technic further contributed by my friend, David M. Davis, Professor of Urology at the Jefferson Medical College of Philadelphia.

This approach to the bladder is the modified Pfannenstiel incision. After he has achieved the purpose of the operation, the bladder is closed around the drainage tubes. A tissue drain is placed in the space of Retzius. The rectus muscles are closed longitudinally by interrupted sutures and the fascia is closed transversely.

The drainage tube is here, and the symphysis is here. Notice the stitch. Then you treat any infection, close your wound and get primary healing of this modified Pfannenstiel transverse incisioion. The drains are brought away from the incision you make to get into the bladder at the operation.

## EMPYEMA THORACIS*

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While empyema has been recognized and variously treated from earliest times, it was the work of the Empyema Commission of our Medical Service of the World War which first standardized the principles of treatment and care of this condition and served to accelerate our interest in lowering the mortality from this complication. Much progress has been made since this outstanding work, in spite of which the mortality from empyema thoracis remains high. While we are all more or less familiar with the work of this Commission, it is the opinion of no less an authority than Ochsner that our present high mortality "is probably due to the fact that the fundamental principles which were laid down by the Empyema Commission are not generally appreciated and that cases of empyema are not individualized." To emphasize this assertion and to re-affirm the basic standard principles in the management of empyema, is the basis of this thesis.

Empyema is not a primary disease but secondary to some other condition, usually pneumonia. Other causes may be pyemia, tuberculosis, actinomycocis and the exanthems. Injuries and surgical operations or their complications may precede.

The pneumococcus is the most frequent causative organism. However, a variety of other organisms may be present. In the post-epidemic influenzal cases the hemolytic streptococcus is the usual offender.

Because the treatment is largely determined by the classification it is well to distinguish here between two large groups of cases, namely, those following the pneumonic process, usually lobar pneumonia—metapneumonic, and those in which the pleural infection occurs in conjunction with the pneumonic process — synpneumonic. This is most frequently associated with lobular pneumonia or influenza. The character of the pleural exudate in the two is of diagnostic importance. In the former it is usually thick, purulent, and contains much fibrin. In the latter it is usually serous or hemorrhagic. In the synpneumonic type the mediastinum retains its usual characteristics; that is, it is freely movable and changes in pressure on the affected side are reflected to the opposite side. This is important in considering plans for treatment.

The pathological and physiological problems encountered in empyema, too, must be carried further in their consideration than merely an exudate in a pleural cavity. We are dealing here with a complication of a systemic disease, and a patient who has already had his mettle tested in a severe ordeal to combat the primary infection.

The mortality from empyema closely parallels the mortality of the primary disease. If we have a season of mild pneumonias with a low mortality, we can likewise find a season of empyema with low mortality. A season of pneumonia of high mortality will run a parallel curve of empyema mortality. In considering results of management this must be taken into consideration. Mortality per cents for different workers in different sections of the country and during different seasons have been shown to vary from about six per cent to above forty per cent, varying with seasonal infections, the primary disease, the etiologic organisms, the age groups, and complications. According to Graham and others, death from an uncomplicated, unilateral empyema is rare. The complications found in empyema, however, are frequently to be regarded as complications of the primary disease of which empyema also is a complication. The method of treatment that is, whether aspiration, open or closed draining, rib-resection, or intercostal puncture does not appear to alter the mortality statistics. In reviewing a group of statistics it is interesting to note that in 1931 Danna reported 35 cases from

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Charity Hospital, New Orleans, where aspiration and air replacement was the method of treatment and the mortality was 5.7. In the same year Ochsner and Gage reported 124 cases from the same institution collected over a ten-year period from the various services, and in which the method of treatment was various, and a mortality of 15.3.

In considering the plan of treatment for empyema the aims to be accomplished should be definitely kept in mind and may be outlined as follows:

1. To relieve toxemia.
2. To relieve intra-thoracic pressure.
3. Avoidance of early open pneumothorax.
4. Rapid sterilization of the diseased area to prevent the condition from becoming chronic.
5. Early obliteration of the cavity and expansion of the lung.
6. Good medical care with special attention to the nutrition of the patient.

The toxemia incident to a large serous cavity filled with a purulent exudate is enormous and should be relieved as early as possible without opening up new avenues of absorption. In this same connection, too, increased intra-thoracic pressure demands early consideration. A decreased vital capacity from compression of the lung and the consequent respiratory distress along with circulatory distress from displacement of the heart and mediastinum, demands early relief. During this stage aspiration is best employed to relieve intra-thoracic pressure. The introduction of air to replace the aspirated fluid as advocated by Danna is a physiological procedure. Cases are recorded in which one aspiration resulted in a cure. We have had one such case. A man 52 years or age was referred to the hospital with an empyema following a severe influenza. The right chest was flat up to the third interspace and there was absence of expansion on the right side. The P. M. I. was in left anterior axillary line. The man was dyspneic and very ill. Seven hundred and fifty c.c. of a thin exudate was aspirated and replaced with 700 c.c. of air. The patient was immediately relieved and had a sense of well being. His convalescence was rapid and there was no further fluid formation. X-ray of the chest two weeks later showed the lung fully expended and normal.

The avoidance of early pneumo-thorax was especially stressed by the Empyema Commission and is now recognized as a primary consideration in the management of empyema. In the early empyema the change in pressure occurring in one pleural cavity is reflected in the other. In the event of a large opening in the affected chest, circulatory collapse or asphyxia is a most likely sequel.

Rapid sterilization of the diseased area is obviously a first essential to prevent the condition from becoming chronic. Good, free, complete drainage is essential for rapid sterilization of the cavity since the pleura has the ability to sterilize itself if these conditions are met. However, since granulating surfaces are rendered clean and healing stimulated by irrigating with Dakin's solution, this is probably a useful procedure if there is no bronchial fistula.

Early obliteration of the cavity and expansion of the lung is important in preventing chronicity. Many procedures are suggested for hastening expansion of the lung such as blowing up balloons and into water bottles, and playing wind instruments. It is the consensus of opinion that no matter what efforts are made to re-expand the lung ultimately it must be maintained in the position of re-expansion by adhesions between the parietal and visceral pleura. Probably the contraction of these adhesions in the healing process plays a large part in re-expansion.

Good medical care and forced nutrition is too often overlooked in the care of empyema. We are all familiar with the picture of a thin, mal-nourished, anemic looking individual slowly convalescing from empyema. Probably this is a factor in the slow convalescence. These individuals should have a high caloric, high vitamin diet and be forced fed. An intake of 3300 to 3500 calories was advocated as a basal diet in acute empyema by the Empyema Commission.

In the treatment of acute empyema there

are three fundamental methods of treatment each of which are variously modified:

1. Aspiration.
2. So-called closed drainage.
3. Open thoracotomy.

In the various treatises and in reviewing the literature, we have always been impressed that most surgeons are committed to some more or less routine method of treatment. This is our effort to stress the fundamental aims in treatment. And we believe these should be kept uppermost in mind and the method or methods adapted to the individual case. These methods and their various modifications are amply described and discussed in the current literature.

### DISCUSSION

Dr. Walter O. Moss (Lake Charles): On reviewing Dr. Green's manuscript, I was immediately impressed with the fact that he had very thoroughly covered the ground in regard to empyema.

Empyema must be considered a surgical entity unto itself, and it makes no difference in any generalized method of treatment whether it be aspiration, the open or closed method of drainage, because each case is individual. Some cases that are opened could have remained unopened with relief to the patient because of the absence of a great hole in the chest wall and the future occurrence of chronic empyema and a large mass of adhesions, with resulting complications about which we all know.

Dr. W. P. D. Tilly (New Iberia): After discussing this very interesting subject of empyema, some fourteen or fifteen years ago, with Dr. Danna of New Orleans, we started this aspiration system on our staff. I am just up here to say a few words in that regard.

It is a simple method and it is easy. The average man who is doing work even in the rural districts, who has occasion to have these cases, might use this method with satisfaction. The patient is at ease shortly after the operation. You do not require very much of an anesthetic. The end result is surprising. Many times, one aspiration, or two or three cleared the case completely and avoided a very serious major operation.

If we can strike these cases at an early period, immediately after we have made a diagnosis of empyema, inject air and withdraw that fluid, it is rather surprising that more are having these serious and complicated operations.

I just want to make this point, because it is interesting. It is one that has provoked much discussion all over the Middle West, and they have sometimes criticized my dear old chief for it, but I have seen some pretty fair results in the past fourteen years.

Dr. James E. Walsworth (Monroe): I should like to tell you a little experience I had which brought to me the idea of conservatism in the handling of these cases.

Briefly, I was referred a little boy with a definite empyema. Aspiration had already been made and the position located with adhesive. When the case came in for operation, we confirmed the findings by x-ray and further aspiration. We sent the little fellow up for general anesthetic to do an open method. The case, for some reason or other, was shifted, and when we went in after scrubbing up, the patient was asleep and we proceeded to open up. Just as we opened the pleura, emphysema came up and the baby collapsed, and we realized we were on the wrong side. We immediately sealed it and resuscitated the baby and the little fellow made an uneventful recovery. The site of the pus was never opened.

That brought to me the fact that a great many of these cases will get well with simple aspirations and without the marked surgical procedure that we sometimes do. Since then we have had a number of cases to confirm that which brought to us a great conservatism in the handling of these young babies, especially.

Dr. Marvin T. Green (Ruston): I should like to thank the gentlemen for their discussion.

Relative to the point made on aspiration, it is my opinion that attempts at cure should always be made by the method of aspiration and possibly air replacement, if you prefer, before any open drainage is instituted. The reason I say that is because we get a large percentage well with simple aspiration without having to do open thoracotomies or even intercostal drainage. It is a physiological procedure and an economical procedure because during the period of aspiration most of these patients can be allowed up. Their toxemia can be sufficiently relieved so that they are not sick patients while they are going about with their empyema.

The purpose of this paper, however, was not to stress treatment. As I stated in the beginning, most theses on empyema deal with specific forms of treatment, and we are impressed that most surgeons are committed to some more or less routine form of treatment. The purpose of this paper was to emphasize the essential requisites for the cure of empyema.

# REACTIONS OF RELATIVES*

## A PROBLEM IN PSYCHIATRY

L. L. CAZENAVETTE, M. D.
NEW ORLEANS

In the usual course of the practice of his profession the physician's diagnosis is seldom questioned by the patient himself or by his relatives. Indeed when a physician has pronounced himself on the nature of the patient's illness and the proper procedure to be followed he usually receives cooperation. The more serious the ailment the more complete the cooperation from those interested in the welfare of the sick one. These good souls will go great lengths in assisting financially or otherwise in carrying out the suggestions of the doctor whether these consist of a special form of therapy, a major operation or hospitalization.

How different is the reaction of these relatives when the physician, realizing that the situation at hand is beyond his usual sphere of professional activities, calls in a psychiatrist who diagnoses the case as one of mental disorder or psychosis. Not that the physician had not previously recognized the unbalanced mental state of his patient but he knows too well, from past experience, that making the diagnosis of insanity or major psychosis is a very serious matter and frequently the cause of bitter feelings against the physician. So he selects the assistance of a psychiatrist for this particular function.

The term "relatives" as used in this paper, is intended to include parents, siblings, uncles, aunts, cousins, and lawful relatives. Similarly by reaction is meant the behavior of relatives.

There are many objections offered by the relatives in their effort to discredit the diagnosis of psychosis. Among the more frequent objections, inspired by the wish to conceal the existence of a mental disorder, is the erroneous belief that such conditions are always hereditary. To them, the acceptance of such a diagnosis would imply that some of their ancestors have been similarly affected. As this would be a reflection on the memory of the departed ones, it is therefore unacceptable. This attitude has been observed in the past, in other departments of medicine. It is well within the memory of many here present that a diagnosis of pulmonary tuberculosis was received with resentment and indigation. The same ideas prevailed then concerning "consumption" as largely prevail today concerning mental diseases.

Should the relatives finally accept the diagnosis, another series of antagonistic activities is encountered. We are confronted with the problem of what should be done for the patient and what should be done with the patient. There will usually be a persistence on the part of the relatives that a trial treatment at home should be given. Inasmuch as they may have witnessed improvement and recovery from ordinary ailments by the use of chemotherapeutic measures, it is natural for them to suppose that similar results may be had by such a form of treatment in the mentally diseased. Should the patient be in a depressed state a "tonic" to change his imaginary ideas will be suggested. Should the patient be excited and restless a "quieting" drug will be insisted upon. You are asked to give a drug that will put the patient to sleep with the assurance that all the patient needs is rest, that after a good rest he will be all right again. To accede to such suggestions may be helpful in a way, while it may be possible to quiet a restless patient by the use of drugs for a short time only, it may also prove the absolute inability to cope with such situations at home, thus easing the way to the second problem, that is, what to do with the patient.

While it is known that the psychiatric patient will be benefited by early care and treatment in an institution the procedure of hospitalizing these patients can with difficulty be accomplished without the consent of relatives. This approach is frequently at fault. The physician will not infrequently speak of "confining the patient in an institution." This phraseology infers that the poor victim will be restrained in all manner of form, and this at once redoubles the already existing opposition to hospitalization. There is still widespread prejudice in regard to mental hospitals. In spite of the fact that it has been repeatedly impressed on the public that the mental hospital should be considered as any other hospital it is still considered the last resort for the most serious cases. It is valuable because it offers unusual facilities available at any stage of the patient's illness. There will be found nurses and attendants equipped with the proper understanding of the methods necessary to meet emergencies. These nurses and attendants, under the guidance of their superiors, by their tenderness and kindness to these patients in their moments of greatest need, by the use of such physiotherapy as the condition demands, have completely and forever removed the necessity of straight jackets and padded cells.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

While the relatives should be told the truth about this matter of hospital care, such information should also be the equipment of the general practitioner. Many of these are in ignorance of how patients are cared for in these hospitals.

Under the title of Man's Last Specter, Inis Weed Jones writes in Scribner's for December, 1935: "The fear and mystery which have surrounded mental disorders have kept the general public from knowing what really happens to people who go to Mental Hospitals. Fear . . . fear of insanity. Fear of the pitiful victims. Fear that the malady was always hereditary. Fear of family stigma. Fear that madness was incurable . . . " and, I may add, fear that the patient, if not psychotic, would become so through contact with the insane and fear of the social and economic state of the individual discharged from such hospitals, have proved so many barriers to the proper understanding of the whole situation.

Enough has been said to bring before you the fact that much of the burden of the psychiatrist is not so much the question of the patient himself, but how to meet the reactions of the relatives of the patient with whom he is dealing.

These abnormal reactions present themselves in various degrees of intensity. It is always a severe shock to be told that a relative is mentally diseased and we therefore expect a certain amount of emotional reaction on the part of the relatives. While I am not prepared to state definitely the reason or cause for these abnormal reactions I feel that there is reason to believe that they result from a mental mechanism of the compensation type whereby these people by feeling uncomfortable and embarrassed by the discovery of a psychotic in their midst unconsciously strive to conceal their deficiency by representing themselves as in a superior state of health. This reaction may be within normal bounds but we must not be blind to the fact that such reactions have set up definite psychoses in relatives.

Dr. Lauretta Bender* reports several cases which she has termed reactive psychosis in response to mental dieases in the family. Among these are cases in which a sister reacted abnormally when the condition of a brother necessitated commitment; two cases of sisters reacting to mental illness in a sister, and several cases of mothers who reacted thus to the mental illness of their sons and daughters. She states that these are reactive pyschoses in the sense that there is a constitutional weakness suggested by the family history of mental illness and by previous episodes of the reactive relatives as well.

At present we are not concerned with such severe reactions as referred to above but with the ordinary trend of difficulties encountered in relatives of psychiatric patients, so pronounced or diagnosed. I now wish to call your attention to a few suggestions which may be helpful in preventing a too abnormal reaction in the relatives of patients. My first thoughts are in the direction of how to present the facts to the family. Realizing that a case of mental illness is frequently demoralizing to some people, it is the duty of the psychiatrist to present the situation with exceeding consideration and care, especially when the question of commitment or transfer to a hospital comes up. The proper presentation of these conditions will depend more on the personality of the physician than on his knowledge of medicine.

The avoidance of the word "dementia", even when referring to the disease known as "dementia praecox," will greatly facilitate matters. The word "dementia" implies a very severe mental deterioration and it is advisable to use the term "schizophrenia" or other milder terms which will in a way mitigate the seriousness of the situation and will not convey a sense of permanent mental disability.

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*Proc. N. Y. Neurol. Soc. and Sect. Neurol. and Psychiat., N. Y. Acad. Med., Feb. 5, 1935.

The family should know that while heredity is considered a contributing factor, the role of heredity in this direction is no greater than that played by heredity in other diseases. Mental diseases may be caused by numerous conditions apart from heredity. Rosenau presents as physical causes of mental disorders the infectious diseases, syphilis, typhoid, influenza, scarlet fever, septicemia, acute and chronic poisoning from drugs, alcohol, endogenous poisoning from nephritis, heart disease and diabetes, disease of the thyroid and head injuries. Other forms of insanity result from inherent abnormal mental make up of the patient; others from vascular changes incident to advanced age. It should not be considered a disgrace to have a member of one's family so afflicted. Such conditions may arise in otherwise perfect ancestry.

A bit of information which may prove of interest, is the fact that only a small percentage of mental patients are very dangerous. The majority of them are permitted to move freely about the wards and grounds of the hospital. Reliable statistics show that an average of 40 per cent of patients admitted to mental hospitals are able to return home recovered and improved. In our best hospitals up to 50 or 60 per cent of their admissions return home. The groups of psychoses showing high rates of discharge are the alcoholic and drug group, the manic depressive, and the psychoneuroses. It goes without saying that few of the organic group ever improve sufficiently to be discharged. I wish to call your attention to the results obtained in the City Hospital for Mental Diseases in New Orleans. The records of this hospital, as embodied in its report to the Commission Council of the City of New Orleans for the year 1935, shows that during that year over 40 per cent of patients admitted were discharged to their families and homes as cured and improved. This result was obtained in a comparatively short hospital residence, of about five to eight weeks. The members of this group comprise the alcoholics, drug addicts, toxemic, manic depressive and catatonic praecoxes.

### CONCLUSION

I wish to state that the suggestions offered above, to meet the difficulties encountered by the reaction of relatives of psychiatric patients, so pronounced or diagnosed, may be summed up in one term—education: Education of the public concerning care and treatment given patients in a mental hospital. The most logical approach to the public is through the family physician. Stress is here made on the necessity of the physician thoroughly to acquaint himself with the conditions of treatment and care existing at the present time, in hospitals for mental diseases, and on the necessity of not considering hospitalization as a last resort in mental disorders. It would be well worth his time and serve the purpose if he were to read the following books or articles:

"A Mind That Found Itself" by Clifford Beers; "Asylum" by William Seabrook; "Reluctantly Told" by Jane Hillyer; "Behind the Door of Delusion" by Inmate Ward No. 8; "The Story of San Michele" by Alex Munthe, and "Man's Last Specter" by Inis Weed Jones in Scribner's for December, 1935.

### DISCUSSIONS

Dr. E. McConnely (New Orleans): This subject is one that is very near to the heart of any psychiatrist and should be near to the heart of any physician who has the well-being of his patients as his first interest. There is no question in the world but that the attitude of families, relatives and friends toward mental disease many times not only prevents the proper treatment of a patient, but actually injures the patient, injures them in that they refuse to recognize the danger signs which cause you properly to safeguard the patient, injures them because they refuse to accept institutionalization except as a last resort in many cases, cases which would get well faster and improve better if in a hospital.

I agree with Dr. Cazenavette that most of this attitude is a matter of education, for, in a final analysis, the attitude of the average layman today, and of a good many physicians is a relic of the Dark Ages when the mentally afflicted were considered to be possessed of demons and when it was considered a disgrace for any family to have a mentally sick person as one of its members. There is also no question but that with the present attitude the individual who has been in an institution has a difficult time getting along economically and socially after his recovery and discharge.

If we educate people to understand that there are a great many transitory psychoses, that there are people who, because of some possible physical illness, become mentally upset but who get well and who may perhaps never have another recurrence, teach them to regard the mentally afflicted as a sick person and that there is no stigma to being sick, it will make the lot of these unfortunate individuals very much easier after they recover.

I think if we should educate people, as Dr. Cazenavette said, as to the methods that are used in properly run modern sanitariums today, and teach them to realize that mental illness may strike anywhere, that we would have a much wider interest among the public as to the well-being of these most unfortunate people and that they would demand better and more efficient institutions and be more willing to accept treatment in these for any members of their families who may need it. I feel that people should realize we need institutions of a wider scope than we have at present, at least in Louisiana, where people may be placed for observation so that their diagnosis can be thoroughly established before steps are taken to place them in a permanent mental hospital and where those who are suffering from transitory mental conditions may get well without being sent to a permanent institution. I feel that the general practitioner, as a man coming more directly in contact with the public, can better accomplish this end than the psychiatrists, although it goes without saying that we should do our share.

Dr. J. J. Ayo (Jackson, La.): I am really sorry that there are not more physicians that heard Dr. Cazenavette's paper. The subject he presented should be interesting to every doctor, for I am sure that at some time or another he comes in contact with people who have some mental disease and it becomes a problem, just as Dr. Cazenavette said. It is not only the psychiatrist, of course the psycriatrist is the last man who handles that kind of patient, and doctors should be better acquainted with the matter. It is a matter of education, among the doctors and education among the people.

There was a time, as Dr. Connely said, when people talked about a man or woman who was crazy or insane, as though they were possessed of devils, but mental disease should be considered the same as any other disease. For instance, a man has cardiac disease or renal disease, or a disease like cerebral hemorrhage, or any other disease; a case of insanity should be treated the same way, should be given the same consideration.

I have been at Jackson for eighteen months, and with me it was all new. I was told my work would be purely executive and that is what it is. I talk with these patients and see what is being done, and I talk with the doctors, in other words, look after the interests of the patients. We have about 4000 inmates. I have taken visitors through the premises and after it is all over they say "Doctor, you have 4000 people here, well what has become of them? Everything is so quiet." The place is automatic, it runs itself. People used to think the people sent up to the asylum were kept in cells, tied to chairs, kept in straightjackets, and treated as dangerous individuals, but today it is altogether different. We see as little restraint as possible. You would be surprised how few patients are restrained. The patients are treated with consideration and the more you can make them feel at home, the better you get along with them. You have your troubles with relatives, but send the patients up to Jackson and after they are up there we have the same trouble with the relatives you had.

There are certain forms of insanity, like the praecox, and the paranoids in that they are very cunning. This kind of patients have no insight, no judgment. They never think they are crazy. We never have a paranoid who admits he is insane, and his parents and friends come to visit him and he convinces them there is nothing wrong with him, and then we have to struggle with the relatives. That is one of our problems. We like to see the manic depressive cases come in, especially the excited cases. The more they rave and talk at random, the more we feel that in a short time we are going to send them home cured. They may get a recurrence, but anyhow we send them home for the time being in a perfectly normal condition. Of course, there are other cases that are hopeless and all that can be expected with them is adjustment in the institution. They do adjust themselves and it would be really too bad to try to get them out of the institution where they are perfectly happy and get along very well.

I have nothing further to add to what Dr. Cazenavette said. I think his remarks are very timely and that it is a question of education. It is quite a problem. I do not think our laws are exactly right in regard to committing a patient. Do not lose sight of the fact that psychosis has no respect for education or rank or anything else. We are all liable, anyone of us, to become psychotic. We have no control over that. So far as senility is concerned, if some of us live long enough we are apt to see a little psychosis at that age. Our laws are not exactly right. What Dr. Connely said about having a hospital which would be considered for observation so that the word "insanity" is not said before you are exactly sure, because everybody feels like it is a stigma and one of the greatest problems you have is after you are ready to discharge a patient, is his enviroment at home, is what becomes of him.

One particular case, which I happen to know of because she came under my observation, was an excellent nurse, who came into my home as a nurse, and was there when she cracked up. She stayed in Jackson four months, was treated with the utmost consideration; she was a manic case and was finally sent out perfectly well. This nurse—what is the attitude to be towards this lady? She knows she has been up at Jackson and feels as though people know it too, and will not give her employment. Those are sad cases, and many times we do not know what to do.

Dr. Roland Young (Covington): I think this problem can be best solved by the family doctor, by the education of the family doctor, in turn the public particularly, in regard to these diseases, especially since mental disorder does not usually occur at all from one specific thing. That reminds me of the great Doctor Ed. Strecker of Philadelphia and his talks today before the general profession entitled "The Non-Specificity in Etiology of Nervous and Mental Diseases or Disorders." The family doctor is probably the one who has the confidence of the patient and the family as well. The nerve specialist works through him and is thereby very much aided. The education of the public in regard to mental or brain disorder as of disorder of the stomach, by simply some plain every day illustration, I think would be of most benefit. This applies to the family as well.

I had a patient not long ago—Doctor Unsworth is familiar with this case—I got out late at night to see this particular patient and was rather in a hurry. This patient was in a frank psychosis and husband much distressed and disturbed. The husband said "Doctor, what can I do? I must get her away. Somebody is going to find out something about this." When I suggested institutionalizing this case, the husband cried and wept and showed evidence of an acute impending psychosis. This is so sad and unfortunate for the patient.

After recovery, as a rule, when these cases leave the hospital contact occassionally with the doctor for psychotherapy is necessary for sometime. Now, if the family is going to feel as this husband did the patient is going to feel about the situation as they do and will be running to the doctors and back for psychotherapeutic help under cover of darkness.

Dr. L. L. Cazenavette (In conclusion): I have nothing to add except to thank the discussors of this paper.

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# A SIMPLE AND EFFICIENT AID IN THE DIAGNOSIS OF ENDOCRINE DYSFUNCTIONS*

RUFFIN A. PAINE, M. D.
SHREVEPORT, LA.

The ductless and mixed gland dysfunction indicator is a compilation of signs, symptoms, diseases and syndromes, which are, according to the leading authorities on endocrinology, the most frequently encountered, and so applied on a mechanical device that it will show all of the endocrine factors for a differential diagnosis where two or more glands are involved, resulting in a complete comprehensive and instantaneous aid to facilitate diagnosis. The use of this indicator is applicable in cases which have insufficient or no pathology of the larger organs and no apparent physical causes to account for the presenting complaint or condition. The outline gives the differential setups where two or more glands are involved.

The fourteen ductless and mixed glands, a composite from several authorities, are arranged numerically more or less in the order of their importance in the role of endocrine function, and placed in full view on the handle of the indicator.

The role of the endocrines is conceded to hold a position of vast significance, consequently our attention is being directed towards treatment and relief for these cases.

A thorough review of endocrinology reveals numerous overlappings of glands, symptoms, and conditions, the cause of this being a very complex interrelationship. Herein lie our perplexities. The subject is interesting, the literature is voluminous, the study is tedious, the diagnosis is unsatisfactory, and the results obtained in many instances are disappointing. All physicians are aware of the presence and fundamental action of the endocrine glands, and no doubt recognise the salient features of dysfuntion of each, if taken separately, but in disorders of the endocrine system with its interdependence, synergism and antagonism existing to a very irregular complicated degree, we may at the outset expect a complex involvement in probably the majority of cases.

The comparatively few scientific workers are responsible for the knowledge gained in this field of endeavor and the overwhelming number of physicians in private practice are attempting its application to the best of their ability, but the latter are confronted with an obstacle, primary in importance, which prevents them in many instances from obtaining the desired results, namely—diagnosis.

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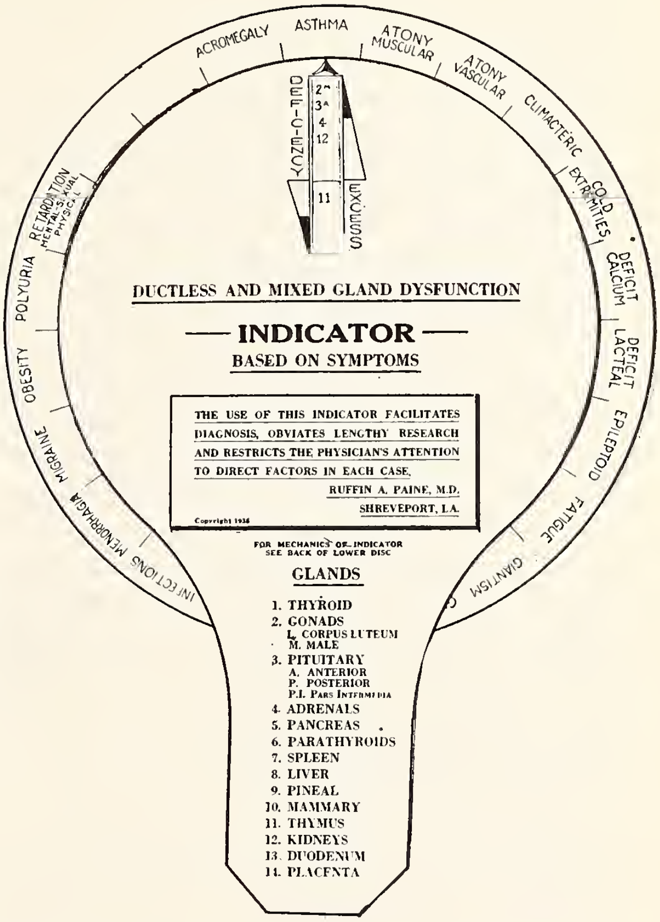
*Read before the Shreveport Medical Society, Shreveport, January 7, 1936.

The conservative physician, who beyond doubt is in the majority, will either manage cases with fear and trembling lest he may be dealing with glands of grave importance or he will not make any pretense at all because of the apparent impossibility of setting up a differential diagnosis. Excellent results are produced in a few obvious cases having only one or two glands involved, but many cases receive inadequate, some improper and others probably no treatment when pluriglandular, the type causing difficulties and even failures in diagnosis.

Should we agree with the preceding paragraphs, then we must admit that a working or differential diagnosis founded on facts is of unlimited value and the means to this end should be welcome. This compilation of the most common disorders, whether they are diseases, signs or symptoms, with all possible endocrine factors, resulting in a simplified outline, is the basis here for the differential possibilites. The chief complaint of an individual case is analysed so that it may be applied to a classified disorder of a similar nature found on the periphery of the indicator. Rotate the circular disc until the section applicable appears above the arrow and instantly you have, presenting in the slot, all etiologic factors that must be considered, and subjected to the process of elimination. The physician's attention is directed only to the glands shown in the slot, as being either in deficit or in excess, and the features of each are carefully reviewed and checked by a physicial examination and scientific tests if indicated. The glands not shown in slot are not to be considered as etiologic factors and are eliminated at once, thereby saving much time from endless research, to be utilized to better advantage.

The thyroid is given position number one due to its function of affecting all glands and cells in the body. It plays a tremendous part in function, is severely taxed daily through its stimulation to every organ and cell, but receives aid from probably no more than six glands, is antagonized by one, and suffers from overwork frequently, which is in proportion to our physical and mental activities.

The gonads are placed second because of their influence on mental behavior particularly in women, who comprise a large percentage of dysfunction cases.



THE USE OF THIS INDICATOR FACILITATES DIAGNOSIS, OBVIATES LENGTHY RESEARCH AND RESTRICTS THE PHYSICIAN'S ATTENTION TO DIRECT FACTORS IN EACH CASE.

RUFFIN A. PAINE, M.D.
SHREVEPORT, LA.

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FOR MECHANICS OF INDICATOR SEE BACK OF LOWER DISC

GLANDS

1. THYROID
2. GONADS
   L. CORPUS LUTEUM
   M. MALE
3. PITUITARY
   A. ANTERIOR
   P. POSTERIOR
   P.I. PARS INTERMEDIA
4. ADRENALS
5. PANCREAS
6. PARATHYROIDS
7. SPLEEN
8. LIVER
9. PINEAL
10. MAMMARY
11. THYMUS
12. KIDNEYS
13. DUODENUM
14. PLACENTA

The pituitary, with its power of nerve control, serving as a stimulus and a check with its many variations on physical and mental accomplishments, should come third.

The adrenals, pancreas, parathyroid, and the others in the order given are similarly analysed with a view of their relative importance, and are so placed.

A few comments may be of value in the interpretations of the following syndromes and the remainder are self-explanatory: Giantism having its inception before adolescence is the result of excess function of the growth and sex hormones of the anterior pituitary, later replaced by a deficit of the sex hormones and of insulin. Acromegaly occurs after the adolescent period and is the result of excess function of the anterior pituitary and the gonads, later in the disease these glands become deficient as well as three others, the thyroid, adrenals, and pancreas.

Asthma, in the absence of cardio-renal pathology, may have its etiology in one or more of the glands listed, not overlooking the prostate gland as a factor since this condition is more prevalent in males than females.

Atony, muscular, may comprise the unstriped muscle fibers such as the gastorintestinal tract as well as the skeletal system, and is caused by possible deficits of the glands shown on the indicator, including the thymus in the case of a child with an excess function of the parathyroids. Atony, vascular, may be due to an excess or deficit of thyroid function, depending on whether the condition is late or early, also on the pathology of the thyroid, together with the other glands listed in deficit and may include venous as well as arterial atony.

Calcium deficit includes hyper-excitation of the nervous system, many ulcers without physical causes, as well as trophic disturbances and lack of calcium metabolism in its widespread role, including pulmonary tuberculosis. The glands listed in deficiency as well as excess thyroid are possible factors.

Fatigue comprises cases which have no physical reason, such as overwork, or lack of sleep, to cause such complaint, and involves one or more of the six glands shown in deficiency.

Fermentative indigestion does not include gross indiscretion in diet or other physical reasons for temporary disturbances, but is more or less chronic with acute or subacute recurrences, with no other pathology, and the four glandular deficiencies found must be considered, particularly the liver tract. Infections include many cases which can not be attributed to physical or external factors, and a thorough study of the deficiencies given must be made, especially the thyroid.

Obesity, probably the most frequent of the entire classification may have in the early stages an excess of pancreatic function, later replaced by a deficit of that gland. The distribution of fat may be diagnostic or mixed. Retardation, mental, sexual, and physical, includes cases of both sexes and all ages, and has a broad field of application, especially in children when the pineal and thymus may not show physiologic atrophy as they should.

Several representative men in the different specialties consider that the ductless and mixed gland dysfunction indicator furnishes a timely aid in this complicated field of diagnosis, and have expressed a definite desire to familiarize themselves with the simplified outline and to apply the principles of it as recommended.

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## DR. HOMER DUPUY

Again it is the sad duty of the editor to comment upon the passing of another outstanding Louisiana physician. In the present year it seems that there have died a great number of outstanding and prominent doctors.

Dr. Homer Dupuy will leave an indelible impression on the minds of the medical profession of New Orleans and Louisiana. He has left equally a strong impression upon the many friends who knew his charm and abilities outside the medical world. A man with a personality that was always delightful and cordial, Dr. Dupuy had a host of friends. His professional abilities and his ability to make friends is exemplified by the many positions to which he was elected during his years of practice; such positions extended from professional positions to the presidency of many professional organizations. As a representative of the State of Louisiana in the Southern Medical Association Dr. Dupuy enjoyed a very extensive friendship with the doctors of the South.

A skilled physician, a master of his particular specialty in medicine Dupuy was not a one job man. He had many other interests and did them all well. He was a scholar and a musician, a man interested in the arts as well as the sciences. His departure will leave a great gap in New Orleans' professional and social life.

## DR. JOSEPH HUME

Dr. Joseph Hume expired on October 17 after a relatively long sickness. The death of Dr. Hume leaves a big void in the medical profession of the city.

For twenty-five years Dr. Hume was in active teaching and head of his department at the Tulane Medical School. A forceful, dynamic individual, his lectures and courses were one of the outstanding features of the instruction of the upper classmen. Starting his lecture almost before the door was closed he delivered a magnificently systematic, well expressed discussion of one or another phase of urology. He was demanding of the students but if he demanded from the students he asked no more than he was willing to give to patients, or to students.

Dr. Hume was a real doctor, a man loved by his patients, a man who took the most intense interest in them and whose care was always assiduous as well as skillful. Dr. Hume was essentially a doctor for the patient, willing to sacrifice himself in any way should the patient seem to require it. While a keen student his contributions to medical sciences were not many but the hundreds, indeed thousands, who were helped and benefited by him doubtlessly think much more of what he had done for them than what he had written.

Those who knew Hume loved him; those who knew him by reputation respected what he had accomplished. His friends and admirers were legion.

## CERTIFICATION OF SPECIALISTS

Some years ago it was felt that men who attempted to practice a rather highly specialized branch of medicine, such as ophthalmology, should not be permitted merely on their own statement that they were specialists to be considered as experts in that branch specified. In other words, an ophthalmologist should not necessarily qualify to practice his branch of medicine unless he has special training of extensive and prolonged character. In order to obviate this difficulty there came into being a special board which examined those applicants who had a required preliminary training, and if the examination was passed successfully it certified that they had been passed by the board. In this way it was possible for those who are not familiar with the ophthalmologists in a given locality to discover immediately which one of those men who were listed as specialists in the American Medical Association directory actually had qualified as competent specialists. This was a distinct advance in medical practice.

In the last few years there have been a considerable number of other special boards formed for the exact purposes mentioned above. Amongst the last of the special groups to take this step have been the internists and the surgeons. The internists have organized a special board composed of representatives of the American Medical Association, American College of Physicians and are prepared now to offer qualifying examinations to those who are to be listed as specialists in internal medicine in the future. The surgical group is planning to hold examinations in the near future but the details have not as yet been consummated.

The House of Delegates of the A. M. A. has been requested by several highly specialized groups of internists to organize boards. These requests have been submitted in turn to the Council on Medical Education and Hospitals with the understanding that recommendations should be made to the Board or to the House of Delegates. The Council and the House have felt that in the more specialized branches of internal medicine a man first should qualify as an internist; he should have a full knowledge of internal medicine in all its aspects and phases before attempting to practice a particular and special division of the whole big specialty. It is planned in the future to organize further boards for those who are interested particularly in such specialties as allergy, diseases of metabolism, cardiology, gastro-enterology and what not. It is hoped that specialties of medicine and surgery will not be carried to too great an extreme. It looks as if there might be a possibility that some men may want to be qualified as specialists in onychology or become certified as a Fallopian tubist.

In the future a man will be listed as a specialist in the A. M. A. directory only if he has passed a qualifying board. At the present time there is evidenced a keen desire in many places to make use of these boards. In many hospitals and in many medical schools a man is not eligible for a high ranking position on the staff until he has shown his competency in a specialty by being certified by special boards. Undoubtedly this trend will increase in the future because a disinterested group has put their mark of approval on the ability and knowledge of the individual specialist.

## CEREBROSPINAL FLUID PRESSURE AND INTRAVENOUS INJECTIONS OF SUCROSE

It has been pointed out frequently that there is a very constant relationship between a high diastolic blood pressure and increase in the spinal fluid pressure. It even has been suggested that the latter is responsible for the former.

Murphy et al* write that the most aggravating symptoms associated with excessively high blood pressure, and most refractory to treatment, are those associated with increased intracranial pressure such as headache, nausea and vomiting, vertigo and visual disturbances associated with papilledema. Furthermore these symptoms are often the prodromes of convulsive seizure.

Conditions associated with hypertension are not only of interest to the medical man but are also of a great deal of importance to the surgeon and those who practice surgical specialties. Operations are not always those that can be delayed or put off but sometimes the surgeon hesitates, to consider carefully and seriously which is the lesser of two evils, to do without the operation or to operate on the man with a high blood pressure.

In 1919 Haden reported on the use of glucose in the treatment of increased intracranial pressure. Since then other reports have been published largely of a surgical nature, showing the value of hypertonic glucose solutions in reducing increased intracranial pressure. The solution has been used quite extensively, incidentally most often by brain surgeons, but there is quite a group or school which believes that reduction of the spinal pressure is dangerous and at the best it is extremely transient. To study the effect of hypertonic sugar solution given intravenously Murphy and his associates selected a group of patients who had chronic hypertension. Those with the benign type of hypertension were found to have a spinal pressure not unduly elevated and the contrary held true in patients with malignant hypertension. They show by a very pretty graph that following intravenous injection of sucrose there is a pronounced drop in the spinal fluid pressure; there is a slight drop in the systolic blood pressure and a not inconsiderable drop in the diastolic pressure. The fall in the spinal pressure is prolonged from 8 to 12 hours, diuresis is prompt beginning in about two hours and continuing after this. The aggravating symptoms such as headache, vomiting, twitching and dizziness have been relieved by this procedure. No unfavorable reactions were observed. The amount given was from 300-500 c. c. of 50 per cent sucrose solution.

Injections of intravenous sucrose solution seem to have a distinct place in the armamentarium of therapeutic procedures which may be used in emergencies. There is one thought, however, that possibly the method may be followed by uremia, with a closing down of renal function. Apparently this objection is theoretic rather than practical, because the elimination of tissue fluids was prompt and the injection was not followed by any untoward catastrophes in the series of cases reported here.

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*Murphy, F. D., Hershberg, R. A. and Katz, A. M.: The effect of intravenous injections of sucrose solution (50 per cent) on the cerebrospinal fluid pressure, the blood pressure and clinical course in cases of chronic hypertension, Am. J. Med. Sci., 192:510, 1936.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

## J. T. NIX CLINIC

New Orleans

At a meeting held in October the following paper was presented by Doctor C. E. Gorman.

### INTESTINAL OBSTRUCTION

For many years surgeons have been faced with a "nightmare." This condition which gives us so much concern is nothing less than intestinal obstruction.

Let us consider briefly the etiology of this dread condition:

1. Intussusception: a prolapse of one part of the gut into an immediately adjoining part. We encounter this early in life; usually the patient is less than ten years of age. Thus these are first seen by the pediatricians.
2. Adhesions: fibrous connective tissue forming from irritation or infection. These may occur as bands, or as a coating, matting the structures together.
3. Paralytic ileus: distention of the intestines with loss of peristalsis. This lack of tone is due to a paralysis of the muscle coats of the intestines.
4. Ulcerations with stricture: these are due to amebiasis, tuberculosis, or syphilis.
5. Peritonitis: either bacterial or chemical.
6. Volvulus: twistng of the mesenteric axis of the intestine.

7. Mesenteric thrombosis: thrombus in the mesentery, resulting in gangrene.

8. Masses: this may include neoplasms, inter- and extra-intestinal, foreign bodies and fecal impaction.

Having tabulated the etiologic factors, we review the signs, symptoms, and aids to diagnosis. The patient usually presents himself vomiting and in shock. He is a poor surgical risk. One should always have a flat abdominal roentgen ray plate and one in the sitting position. The latter is to show the characteristic "Herring bone" effect of the distended loops of bowel as well as the multiple fluid level.[1] Occasionally one gets a typical "step-ladder" appearance on the plate. Multiple fluid levels are conclusive roentgen ray evidence of obstruction. Clinically, we observe the distention. On percussion marked tympany is noted. Possibly a mass may be palpated, or muscular rigidity of the abdominal wall. A history is extremely important, particularly in regard to pain, which is usually very severe and griping in character. Tenderness is nearly always present. The history usually reveals a sudden onset as well as constipation and sometimes obstipation.

The laboratory procedures are very helpful in making a diagnosis. All cases of obstruction should have a blood chemistry in addition to the routine blood picture. The latter may give some idea as to the degree of infection and the resistance of the patient. The former is very helpful in determining the relative alkalosis. This later condition is produced by the loss of chlorides and other acid ious lost to the system by vomiting.

In twenty-four hours approximately 8,000 c.c. of fluid are excreted by the bowel. In intestinal obstruction this fluid becomes static and distends the loops of bowel. The absorption of this material causes a great deal of the resultant toxemia. When the pressure in the distended loops reaches that of the diastolic blood pressure transperitoneal absorption occurs.

The pathologic-physiologic condition presents a definite and logical plan of treatment. Within the past several years two great advances have been made; the development of the Levin (duodenal) catheter[2] and the subsequent Paine-Wangensteen[3] continuous suction apparatus.

The 8,000 c.c. fluid content of the intestine increases the dehydration and alkalosis. Therefore, it is extremely important that the body fluids be maintained. The necessity of this is increased if there is an indwelling naso-duodenal catheter. Vomiting also plays an important role in the production of alkalosis. The hydrochloric acid, along with other acid ions, is depleted from the body.[4]

In combating this horrible condition our first move is to restore the normal physiology in place of the pathologic-physiology. The body fluids are returned to normalcy by a continuous infusion of 5 per cent glucose in Hartman's solution or saline. During the past year the development of the Vacoliter Bottle[5] has simplified this task. We are now able to give continuous infusions for days. The rate of inflow is set by regulating the amount of fluid per minute. Our regular routine is that the average patient should have 3,000 c. c. of fluid in twenty-four hours. Thus, the Vacoliter is set for 40 to 50 drops per minute. With this method we do not insert a canule in the vein. We use a twenty gauge needle preferably one that is short, sharply beveled and short shafted. Furthermore, we have found that the blood chlorides can be maintained at normal by the 3,000 c. c. of glucose in saline per twenty-four hours. To control this and thus regulate the proper amount of glucose a blood chemistry is taken on admission and daily thereafter.

Immediately after the diagnosis is made from the foregoing evidence the routine plan is adopted. The main object is to "deflate" the distended loops of bowel. The naso-duodenal tube is inserted and attached to the Paine-Wangensteen suction. Next an instillation of olive oil per rectum is accomplished. The patient is then forced to retain this oil for one hour. After this he is given a flush either of soda solution or soap suds. If the obstruction is due to fecal impaction the above method is sufficient to release the mass and the patient is cured. If not cured, the abdominal distention is markedly reduced. Thus, the patient is rendered a much better surgical risk.

### IMPRESSION

From this brief consideration of such a vast subject I made the following notations:

1. Patients with the indwelling naso-duodenal catheter develop alkalosis and marked dehydration.
2. If the obstruction is due to fecal impaction good results can be expected non-surgically.
3. The use of the Vacoliter Bottle has simplified the administration of glucose and saline by vein.
4. The combination of the naso-duodenal indwelling catheter with glucose-saline infusions decreases the risk involved in operating on such a case.

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## HUTCHINSON MEMORIAL CLINIC

*Symposium on Osteogenesis Imperfecta*: Conducted by the Department of Pediatrics, Dr. Robert A. Strong presiding.

Dr. Robert A. Strong (Department of Pediatrics): The subject of tonight's meeting has been defined in rather peculiar ways in various text-books. One of them that I found was that the term is most generally used to denote a rare intra-uterine disease, the subjects of which are usually stillborn, although they occasionally survive and may live to adult life. Some of them have been described as achondroplastic dwarfs on account of shortness of the limbs, but there is certainly a distinct difference and so far as we know at present, osteogenesis imperfecta is certainly a distinct entity. We have the opportunity tonight to show you one of Dr. Williamson's cases that was born in Charity Hospital. Dr. Williamson will present and exhibit the case and Dr. Harold Cummins of the Department of Anatomy will discuss the embryologic features.

Dr. Richarda Williamson (Department of Pediatrics): Osteogenesis imperfecta is a skeletal disturbance resulting from a deficiency of osteoblasts which leads to the formation of defective bone, multiple fractures and deformities. That there is a congenital defect in mesenchymal tissue does not answer the question. This condition may be divided into three groups: (1) which is congenital and which I believe our case is; (2) which is infantile, and (3) which comes on later in life and which I think some text-books say is osteogenesis imperfecta tarda. Some people say it is due to a dysfunction of certain endocrine glands during fetal development. The parathyroids have received the greatest attention because of their influence on the metabolism of calcium and phosphorus. Vrolicken, in 1845, was the first to describe osteogenesis imperfecta as a disease which manifests itself in intra-uterine life. Just last year at Mayo Clinic, Tarda and Wilder treated a case of osteogenesis imperfecta with thymus extract and improvement was noted in one month. All of these, however, do not give us the underlying cause; we still do not know the origin. Many workers have shown that it is familial. Bronson found it in four generations. Of 55 persons, 21 had gray-blue sclerae and twenty of these had fractures. In the second family of eight, seven were affected with blue sclerae and four of these had fractures as well. She also believed that blue sclerae were due to a lack of calcium and that they were of normal thickness. Thomson said the blue sclerae were more marked in postnatal cases. The blueness may fade. In Lobstein's disease, or osteopsathyrosis, some have friable bones, some suffer with deafness and some have blue sclerae; some have all or two of the three. The late Dr. Carroll Allen was interested in cats and noticed among his cats that those with blue sclerae always had fractures of the legs. Another family, who had white Persian kittens, told me that the blue-eyed ones were stone deaf.

*Case Report*: I have a baby here who is now thirteen months old. This is a congenital case of osteogenesis imperfecta and as a rule they die immediately after birth or may be born dead. We have managed to keep this baby alive by keeping it in the newborn nursery at Charity Hospital. We have now, however, transferred it from the nursery to the ward. At first, the baby looked like a strong baby boy. It has the big head which is not hydrocephalic. The head is supposed to be normal, at first, in size but as a rule the bones are so little ossified that it is perfectly soft. This baby's head was just like a tense bag which changed form with change of position of the baby. The blue sclerae are also present but, I believe, are fading. I believe we have many normal children who have blue sclerotics. The trunk of the baby is perfectly normal. The limbs are misshapen. The curvatures and angulations come from old fractures which were made intra-uterine. This patient's potassium, magnesium and sodium salts were normal. I suppose in discussing treatment you have to say careful nursing. I would like to show the roentgen ray pictures which have been taken at regular intervals from the age of four days until the present time. I think the nicest plates are the ones taken when the baby was four days old, four months and one year old. When this baby was first born there were four fractures. He is now beginning to have curvature of the lower limbs. No fractures were seen in the lower limbs at four days. Dr. McIlhenny was supposed to have seen this case but he tells me that he has not. At Charity Hospital they fed this child thymus extract, I do not think with any good results. It may be because it is of the congenital type. In the roentgen ray films taken recently much callous formation is noted. The ribs have never been broken. As treatment we have tried calcium which we know is of no value, viosterol which we would have given anyhow and we have given it thymus. Whether or not the thymus extract should be tried again is a point of controversy.

Dr. Strong: There is just one point with reference to heredity that I would like to bring out. There have been instances in which there have been five of these babies born in one family.

Dr. Harold Cummins (Department of Anatomy, Division of Microscopic Anatomy): Dr. Strong has asked me to discuss the embryologic aspect of osteogenesis imperfecta, but I should like first to present another case, a stillborn female received from Dr. E. L. King shortly after its delivery.

This, too, is an instance of a congenital variety of osteogenesis imperfecta, more extreme perhaps than the one just demonstrated, because in this instance there were multiple fractures at birth, as one can see by the deformed extremities, especially the legs (demonstrates specimen). One can note also the characteristic head, which one writer has referred to as a rubber-ball head; another, a bag of skin, because of the imperfect ossification. If there is any ossification at all, it is in the form of isolated plaques, which have been likened to a fractured eggshell. When this stillborn baby was fresh one could detect crepitation with the slightest movement of the extremities. The ribs felt nodular, again indicating fractures.

In osteogenesis imperfecta the healing process occurs rather promptly and in normal fashion. Before discussing the developmental basis of osteogenesis imperfecta it is perhaps wise to recall the composition of bone. In bone there is not only a calcareous matrix, with the cells embedded in lacunae, but there exists also a background of fibers having much the same chemistry as the fibers which occur in ordinary fibrous connective tissue. I wish to emphasize this point because later in the discussion it will be brought out that one interpretation of osteogenesis imperfecta is that we are dealing not essentially with an upset in the behavior of the inorganic salts, but rather a default in the laying down of this fibrous binding material. From that point of view the bones are fragile for the same reason that the bones of an aged person are fragile. Dr. Strong referred to the names which are employed in reference to this condition. We might call it osteogenesis imperfecta, designating this improper laying down of bone tissue, and it may be termed fragilitas ossium or osteopsathyrosis, both descriptive of the fragile character of the bones. Now what is the developmental explanation of this fragility? So far as studies of its early fetal histopathology are concerned we are uninformed. There have been workers who have attempted to demonstrate osteogenesis imperfecta in the earlier fetus, however, presenting in their roentgen ray illustrations the results, not of osteogenesis imperfecta, but rather the condition that is fairly typical of a fetus which had been dead a long time *in utero* before it was expelled. When a dead fetus is not expelled promptly but is retained in the uterus, certain changes occur, among which is the transport of salts from bones through the tissues of the fetal body. Thus, if one makes a roentgen ray of a fetus that has remained *in utero* for some time since its death, you will see not the formation of living bone, but pictures of postmortem changes. The histologic studies which have been made in the late fetus as well as in the infant and other postnatal cases bear out the general statement that in osteogenesis imperfecta there is a deficiency in osteoblasts. As Dr. Williamson pointed out, these cells are probably exercising their normal activity in so far as calcium behavior is concerned but their laying down of fibers is faulty. Thus osteogenesis imperfecta might be thought of as a hypoplasia of fibers. How would that accord with the three cardinal symptoms: (1) fragility of bone, because the fibrous binding structure is inadequate; (2) blue sclerae, not because of discoloration—some writers refer to discoloration—the sclera is blue because it is thin, and the fibers being less densely woven together than in the normal and admitting the pigment of the choroid to show through; and (3) deafness. One explanation is that the deafness is due to otosclerosis.

Two years ago Dr. Stacy R. Gould, of the Crowe Otological Research Laboratory at Johns Hopkins, chanced upon a finding which suggests another possible explanation. He discovered in the petrous bones of many of his deaf subjects myriads of minute fractures; the bone had been fractured presumably under the impact of the mandible in chewing. If this damage can occur in individuals who are not afflicted with osteogenesis imperfecta, as in Guild's cases, a greater susceptibility to fracture is all the more likely in those with pathologically fragile bones. Osteogenesis imperfecta developmentally can be classified as (1) congenital, and (2) the retarded form. It appears quite probable that these two classes are simply degrees of the same faulty development, the early congenital form being the more grave and the retarded form the more mild. If we try to classify osteogenesis imperfecta into further subdivisions all sorts of difficulty is encountered and there is, after all, no point in attempting a refined classification. What is behind this faulty development? Family history was mentioned. Let us examine a family history (blackboard illustration) from a report by Kaplan of last year. It begins with a couple in which the woman displays multiple fractures, osteogenesis imperfecta of the retarded type. She was a cripple, practically confined throughout her life. Her husband was normal. Their daughter shows multiple fractures and blue sclerae. She married a normal man and had seven children, two girls and five boys. Four boys died in infancy, and while nothing is known of their history it is very suggestive that they did not survive, coming as they do from a family presenting a maldevelopment of this sort. The two girls had blue sclerae but not fragility of bone. One of these daughters married a normal man and they had two girls. One showed fragility of bone; the other, fragility of bone and blue sclerae. It might be thought, in seeing instances of this condition in four generations, that it was inherited. It probably is in this instance, for numerous family histories are on record to prove the inheritance of osteogenesis imperfecta, but let me point out that the family tree just cited is not sufficient to establish inheritance, because in each case it is a female responsible for the transmission. This particular family history was selected as the basis for discussion of the point that there may be a metabolic or other disturbances in women which may prejudice fetal development, as instanced by the woman with osteomalacia who produces a child presenting rickets. There are some cases of osteogenesis imperfecta in which the condition seems to occur without any family background. While the possibility of inheritance is not excluded, as generation after generation is at times skipped in certain modes of hereditary transmission, the fault might result from intra-uterine handicap of the developing fetus. One case apparently lending itself to that interpretation may be mentioned. A woman in whose family there is no osteogenesis imperfecta or blue sclerae gave birth to an infant having multiple fractures and blue sclerae. The baby died immediately. In searching out the prenatal history it was found that this woman had been taking ergot and quinine and at close intervals through the first six months of pregnancy. Under these circumstances the uterus would have been a very unfit place for the development of an embyro. A factor which retards the development of the embryo, especially in the early phases, may lead to one or another type of abnormality, perhaps including this type in which the fibrous background of bone is deficient.

Dr. Paul A. McIllhenny, (Department of Surgery, Division of Orthopedics): Dr. Williamson asked me about this case and I have no recollection of having seen this child at Charity Hospital. My first connection with osteogenesis imperfecta and the use of thymus extract was five or six years ago when Bruce Gill reported two cases in which he had used thymus in osteogenesis tarda. These were six or seven years old and were bedridden. After two years of thymus extract, given 2 grains twice a day, they were able to ride bicycles, play marbles and do almost anything normal children do. After reading the article I began using thymus extract in Charity Hospital. There was a child who was taken to Touro on the third day after birth with a fracture of the left femur; this child came into my service seven years later at Charity Hospital with a deformity of the upper third of the femur and a history of repeated fractures, but roentgen ray did not bear out the history by the mother. This child was operated on several times to correct the deformities in the femora and while under treatment would be rolling along in a rolling chair and somebody would brush against her and the leg would break below the knee. The peculiar part is that they seem to reunite so readily. I put this particular case on thymus extract, 2 grains daily and kept her on it for two years. I could not see any great amount of benefit except that she did not develop as many fractures. She has now been discharged from Charity Hospital for approximately one and one-half years. Whether she has had delayed benefit from thymus extract or not I do not know. She is now walking around.

Dr. Cummins: In connection with these dystrophies of bone, Dr. Williamson mentioned cats having blue eyes and fragility. We do not breed animals to perpetuate osteogenesis imperfecta but we do breed for some other dystrophies, among which may be mentioned achondroplasia. The dachshund, for example, is an achondroplastic dog.

Dr. Howard R. Mahorner (Department of Surgery): My interest in this particular condition is indirect and is derived from a case which I showed at a Hutchinson Memorial Clinic Staff Meeting about two years ago; a case of dischondroplasia, another idiopathic dystrophy of bone. Dyschondroplasia is the most common of all bone dystrophies in the records of the Clinic. It is even more common than achondroplasia which we usually think of as having a greater incidence since the features of that conditon are more apparent. We see them as the little short muscular athletic people, not uncommonly funny men in the circus. In the case referred to a huge tumor originating from the inside of the femur in a boy aged fourteen interfered with his walking. This was removed and studied histologically. This led to a study of the question as to how dyschondroplasia might be interrelated to achondroplasia or any other idiopathic dystrophies such as Marquio's disease, osteogenesis imperfecta and hyperteliorism, and it resolves itself into a problem of dissociation of bone formation and bone growth. In the development of bone there is first cartilage consisting of living cells and a matrix. Calcium is precipitated in the matrix and forms a groundwork. Osteoblasts invade this area and imprison themselves to become true bone cells. At first trabeculated, later compact bone is evolved by partial absorption, the work of the osteoclasts, and redeposit of bone occurs around osteoblasts to form a compact zone with Haversian canals. In osteogenesis imperfecta there is apparently cessation of development of bone at the cancellous stage. It does not proceed to compact bone. I have seen no histologic sections from the bones in this condition but histologic sections of the cortex of these bones which I have found in publications do not show compact bone at all but cancellous bone. Achondroplasia, which we think of as the most common dystrophy is of another type, in which the growth line varies in its proliferation. Whereas it should be open and growing up to 18 or 22 years it unites much earlier and there have been cases in which the epiphysis is united to the diaphysis even at birth. Dyschondroplasia has an entirely different pathogenesis (blackboard illustration). There is a failure of tubulation or diaphysation leaving exostoses on the metaphyseal side of the epiphyseal line always pointing away from the epiphysis. As yet though nothing certain is known about the etiology of these conditions, dyschondroplasia like osteogenesis imperfecta can frequently be proved to be familial.

Dr. W. H. Perkins (Department of Preventive Medicine): I have noted in the discussion that several references have been made to the ready healing of fractures and normal calcium level of the blood which seems to indicate that there is no abnormal relationship between metabolism of the calcium and the healing of fractures. Dr. Cummins has again raised in my mind a possibility in which I have been much interested. The literature mentions instances in the development of certain congenital defects in which the blue sclerotics described are associated with defective fibrous tissue. I mention varicose veins and hernia as two of them. Wide variations of fibrous tissue development are seen also in normal persons. Is there not the possibility that a condition underlies these many manifestations of fibrous tissue defect in keeping with the theories of Mall and Stockard? I ask Dr. Cummins whether one could look upon this fibrous tissue variability which occurs in many of us who appear perfectly normal as a manifestation of a congenital defect of fibrous tissues generally which might be called fibrogenesis imperfecta?

Dr. Cummins: It is extremely difficult if not impossible to draw the line between the abnormal and the normal in many characteristics. Just as human beings vary constitutionally in other respects, so do they differ in degrees of fibrous development; some individuals are more fibrous than others, as some are more hairy or more heavily pigmented. The state which is of common occurrence, though itself embracing a considerable latitude of variation, is usually rated "normal". When the fibrous tissue is deficient, even exhibiting the functional disabilities mentioned by Dr. Perkins, is it definitely hypoplastic and abnormal, the condition meriting his name of "fibrogenesis imperfecta". The basis of this hypoplastic fibrous constitution is to be sought both in the inheritance of the individual and in his developmental environment, the latter being in line with the suggestions of Mall and Stockard.

Dr. Strong: I think from what has been said that there are certain definite conclusions to be drawn. Dr. Cummins, who has discussed the embryology of the subject rather completly has given us some ideas of how we may start to trace the cause of this unusual condition. In summarizing his remarks, when he first spoke, he mentioned one which coincides with an opinion that I have had concerning, not only this peculiar deformity, but others of intra-uterine origin. This belief has been growing over a period of many years. I have always felt that there was some bar sinister between us and success in treating many children. I think he revealed it when he said that the uterus occasionally has been made an unfit place for the growth and development of what subsequently becomes a baby. Many physical defects may be explained by this. Because of prenatal conditions we have nothing with which to work. In any event, I am sure that there is much more to be learned about this subject and perhaps some of us will find out some day.

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Next meeting Thursday, November 5, 1936
Scientific Session
Symposium—Uterine Bleeding
Dr. Hilliard E. Miller, presiding

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## THE NORTH LOUISIANA SANITARIUM

The North Louisiana Staff meeting was called to order, September 22, 1936, by the President with 20 regular members present. After the disposal of routine business, attention was turned to the scientific program.

Dr. Rigby presented several cases of brain injuries. The first case was that of an infant who had a small encephalo-meningocele. Dr. Wolfe spoke of the frequency of occurrence and indications for surgery. Dr. Rigby then described the findings and surgical procedure and mentioned that as far as he knows this case was the first in this country in which a piece of skull bone from a dead premature had been used for purpose of grafting. The graft, however, had not taken.

The second case was that of a Mr. S., injured in 1931 by a falling piece of iron that struck him on the vertex of the skull. When seen by Dr. Rigby he was complaining of headache. Spinal fluid was clear but definitely under increased pressure. Roentgen ray showed depressed fracture of the inner table of the skull causing pressure on the brain. The depressed inner table was elevated and followed by complete relief of symptoms to date. The operation was done in May 1931.

The next case was that of a colored woman who was struck in the right temporal region with a pair of pliers. Bleeding was found to be coming from the middle meningeal artery which was tied off and followed by an uneventful recovery.

The next case was that of Dr. W., aged 66, who was admitted to the Hospital Sept. 15, 1935, unconscious following an automobile accident with injuries of the head. The roentgen ray picture showed no fracture but the spinal fluid was bloody.

In a few days the patient developed a left sided hemiplegia. Drs. Kerlin and Gray were called into consultation. A diagnosis of a subdural hematoma was made and surgery advised. At operation, the diagnosis was confirmed and the clot removed. The patient had an uneventful recovery, the hemiplegia disappearing except for some slight tingling sensations. The doctor is now actively engaged in his practice and enjoying good health.

Dr. Green opened the discussion on Drs. Webb and Heard's case by describing a long difficult labor that had to be terminated by a high forceps delivery. There was much difficulty in resuscitating the child; however, after a half hour of mouth to mouth breathing, the infant began to breath. There was a large hematoma of the left temporal region. The morning following delivery, Dr. Webb was called in to see the infant who was having considerable respiratory embarrassment, but there were no cerebral symptoms. By noon muscular twitching was noticed on the left side and spinal puncture revealed bloody spinal fluid; 15 c. c. spinal fluid was removed and 30 c. c. of blood was given intramuscularly. Several cisterna punctures were done until the blood cleared up. A roentgen ray picture showed a depressed fracture in the left temporal region. Dr. Heard described the operation for the elevation of the depressed fracture, the removal of the blood-beneath the dura in that region. To date the patient has shown progressive improvement, but Dr. Webb stated that it was too early to tell just what effect the injury will have on the infant's mentality.

H. M. Trifon, M. D., Sec.

## THE SHREVEPORT EYE, EAR, NOSE AND THROAT SOCIETY

The Shreveport Eye, Ear, Nose and Throat Society met in regular session at the Charity Hospital, the evening of Monday, October 5, 1936, at 7:30 o'clock. The president Dr. L. W. Gorton presided. The following members were present: Dr. R. H. Carter of Marshall, Texas and Drs. L. W. Gorton, T. D. Boaz, Claude LaRue, W. L. Atkins, and J. A. Wilkinson, of Shreveport. Dr. George Wolfe was a guest of the club.

Dr. Gorton presented a case of strabismus in a white boy about six years of age. The interesting feature was his inability to rotate either eye outward beyond the middle line. The question to be decided was whether there was paralysis, weakness, or absence of the external recti muscles, and the method of arriving at a diagnosis and treatment.

Dr. LaRue presented a young white girl, who was totally deaf, had cleared up for a time and became deaf again. There was a history of malaria and treatment by quinine, which might have had a bearing on the deafness. Her blood Wassermann was repeatedly negative, though she gave a positive Kahn three times. As a further aid to diagnosis a spinal Wassermann was suggested.

Dr. LaRue's second case was one of deafness in a man who had been struck on the right ear by a bush, since which time he has suffered from tenderness in and about the ear, deafness and vertigo. A thorough search had been made for foreign bodies in the external and middle ear. None was found. Roentgen ray of the mastoid was negative. No definite line of treatment was decided upon.

Dr. Wilkinson, assisted by Dr. Wolfe, presented a case of Schuller-Christian's disease characterized by proptosis of the right eye, diabetes inspidus, and rarefaction of the frontal bone. This case was of unusual interest due to the fact that only fifty-seven cases have been reported.

Dr. Wilkinson also presented a negro man, twenty-five years of age, who had had a bilateral cataract, the cause of which was undetermined. He had been checked for foci of infection, diabetes and syphilis. The second point of interest was the fact that after a simple iridectomy, the cataract was rapidly absorbed leaving a clear pupil and vision of 20/20 with correction.

Dr. Boaz presented a case of symblepharon in a young negro girl. The upper lid was adherent to the bulbar conjuctiva below the cornea giving the impression of absence of the eye-ball. Dr. Boaz stated his intention of freeing the adhesions and ascertaining the condition of the cornea.

The meeting was adjourned until the first Monday in November.

Dr. L. W. Gorton, Pres.
Dr. J. A. Wilkinson, Sec.

# TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

## CALENDAR

NOVEMBER 2 Board of Directors, Orleans Parish Medical Society, 8 p. m.

NOVEMBER 2 Eye, Ear, Nose and Throat Staff, 8 p. m.

NOVEMBER 4 Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

NOVEMBER 4 Mercy Hospital Staff, 8 p. m.

NOVEMBER 4 Board of Governors, 1st and 2nd District Dental Society, 8 p. m.

NOVEMBER 6 Pathologic Conference, Hotel Dieu, 11 a. m. to 12 noon.

NOVEMBER 9 ORLEANS PARISH MEDICAL SOCIETY, 8 p. m.

NOVEMBER 10 Charity Hospital Dental Staff, 8 p. m.

NOVEMBER 11 Touro Infirmary Staff, 8 p. m.

NOVEMBER 13 Pathologic Conference, Hotel Dieu, 11 a. m. to 12 noon.

NOVEMBER 13 French Hospital Staff, 8 p. m.

NOVEMBER 16 Hotel Dieu Staff, 8 p. m.

NOVEMBER 17 Charity Hospital Medical Staff, 8 p. m.

NOVEMBER 18 Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

NOVEMBER 18 Charity Hospital Surgical Staff, 8 p. m.

NOVEMBER 19 Eye, Ear, Nose and Throat Club, 8 p. m.

NOVEMBER 20 Pathologic Conference, Hotel Dieu, 11 a. m. to 12 noon.

NOVEMBER 20 I. C. R. R. Hospital Staff, 12 noon.

NOVEMBER 23 ORLEANS PARISH MEDICAL SOCIETY, 8 p. m. Election of Delegates to the Louisiana State Medical Society and Nominations for Officers, 1937.

NOVEMBER 24 Baptist Hospital Staff, 8 p. m.

NOVEMBER 25 Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

NOVEMBER 27 Pathologic Conference, Hotel Dieu, 11 a. m. to 12 noon.

During the month of October, the Society held two special meetings, one joint scientific and third quarterly executive meeting, and one joint clinical meeting at Charity Hospital.

Dr. Morris Fishbein, Editor of the Journal of the American Medical Association, was the guest of the Society at a special meeting held October 1, and spoke on "Medicine and the New Social Order."

On October 5, Mr. Archibald McIndoe of London, England, was the guest of the Society. He presented a paper on "Some Phases of Plastic Surgery."

At the joint scientific and third quarterly executive meeting, the following program was presented:

Continuous Drip Blood Transfusion—(Marriott). Indications for its use with report of cases.

By ................................Dr. Daniel N. Silverman

Remarks by Drs. Rudolph Matas and Louis Levy, and in conclusion Dr. Silverman explained slides showing the apparatus and method for transfusion. Dr. Sam Carlin exhibited a continuous drip blood transfusion apparatus of the type used by Marriott.

The Introduction of Leprosy into Louisiana.

By ................................Dr. Theodore J. Dimitry

Discussed by Drs. A. E. Fossier and Rudolph Matas.

Demonstration of Simplified Projection of Roentgen ray films.

By ................................Dr. E. R. Bowie

At the joint Clinical Meeting with the Orleans Parish Medical Society and the Charity Hospital Staff held in the Miles Amphitheatre, Charity Hospital, the following cases were presented and discussed by the members of the Society and the Charity Hospital Staff:

Dr. Chaille Jamison—Diffused toxic goiter in six year old colored female.

Drs. L. S. Charbonnet, Jr. and J. Roy Theriot—Two cases of mesenteric infarction with extensive resections.

Dr. F. F. Boyce—Primary streptococcus peritonitis.

Drs. Frank Cato and Wm. D. Norman—Bone lesion of humerus from inflammatory neoplasm.

Dr. Conrad G. Collins—Congenital deformity of the foot.

Dr. I. M. Gage—Cleidocranial dysostosis.

Drs. O. C. Cassegrain and H. R. Mahorner—Amebic hepatic abscess with rupture in the pleural cavity: Callander amputation.

Dr. P. H. Jones—Lung abscess.

Dr. Roy H. Turner—Syphilis of the stomach.

Dr. P. Gregory—Amyloid nephrosis.

Dr. Robert Bayley—Pituitary tumor.

The following doctors were elected to Active Membership: Drs. Peter Everett, Jr., Wm. Howard Gillentine, Robt. J. Mainegra, John G. Menville, Howard H. Russell, James W. Tedder and Geo. H. Upton. Dr. Richard W. Vincent was elected to Interne Membership.

We regret to report the loss by death of Drs. James R. Daboval and Joseph Hume.

Dr. R. H. Kampmeier has moved to Vanderbilt University School of Medicine, Nashville, Tennessee.

Dr. Geo. D. Lilly has moved to 333 Queen Ingraham Bldg., Miami, Florida.

Dr. Francis E. LeJeune was a guest speaker at the meeting of the American Academy of Ophthalmology and Otolaryngology held in New York City September 26 to October 3, 1936. Among others attending this meeting were Drs. L. W. Alexander, Chas. A. Bahn, W. R. Buffington, Chas. L. Cox, Val H. Fuchs, John B. Gooch. J. Browne Larose, Neal Owens, Victor C. Smith, Geo. J. Taquino and Wm. A. Wagner.

Dr. C. C. Dauer attended the Rocky Mountain Tuberculosis Conference held at Albuquerque, New Mexico, September 28 and 29.

Dr. H. W. Kostmayer attended the meeting of the Fourth District Medical Society held in Shreveport on October 6, 1936.

Dr. Robert A. Strong was the guest speaker at the meeting of the Fourth District Medical Society held in Shreveport, October 6, 1936.

Dr. James T. Nix was the guest speaker at the meeting of the International Federation of Catholic Alumnae in Dallas October 4, 1936.

Dr. Isidore Cohn participated in a Fracture Symposium at the University of Pennsylvania Hospital during the meeting of the American College of Surgeons in Philadelphia, October 19.

Dr. Thos. B. Sellers was on the program of the Central Association of Obstetrics and Gynecology at Detroit, Michigan.

The members are urged to notify the Secretary's office of any changes in address.

## TREASURER'S REPORT

| | |
|---|---|
| ACTUAL BOOK BALANCE: 8/31/36 | $1,768.03 |
| September Credits: | $ 326.39 |
| | $2,094.42 |
| September expenditures: | $ 437.59 |
| ACTUAL BOOK BALANCE: 9/30/36: | $1,656.83 |

## LIBRARIAN'S REPORT

During the months of July-September, 136 books were added to the Library. Of these 79 were received by binding, 29 by gift, 3 by purchase and 25 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is given below.

The Library has loaned 1,722 books and journals to doctors during the quarter, or more than one each month to each member of the Society. In addition 498 items have been loaned to students, making a total of 2,220. These figures do not include the great use of books and journals within the Reading Room.

On request of physicians, members of the staff have collected material on the following subjects during the quarter:

Bronchiectasis.
Health insurance.
Bone retractors.
Cystine content of finger nails in arthritis.
Myocarditis.
Eye and endocrines.
Takata—Ara reactions.
X-ray treatment in leukemia.
Leprosy in Louisiana.
Complications of ectopic pregnancy.
Agents used to produce hyperpyrexia.
Accessory mammary glands.
Diodoquin.
Flagellates.
History of anesthesia.
Florence's reaction.
History of urology in Louisiana.
Personal bibliography of Ansel M. Caine.
Picture of kymograph.
Carcinoma of lung.
Inhibin.
Resuscitation.
Acrodynia.
Vinethene.
Ether convulsions.
Heredity in disease.
Cyst of lung.
Skillern's fracture.
Psychobiology.
Yoga method.
Electric shock to bones and peripheral nerves.
Perityphlitis.
Plocach.
Diabetic coma.
Differential diagnosis in jaundice.
Atresia of posterior nares.
Legge-Perthes' disease.
Esophageal bleeding.
Experimental research on cause of death in air embolisms.

## NEW BOOKS

Montague—Why bring that up? 1936.

Hawes, J. B.—Diagnosis and Treatment of Pulmonary Tuberculosis. 1936.

Herrmann, G. H.—Synopsis of Diseases of Heart and Arteries. 1936.

Herrmann, L. G.—Passive Vascular Exercises. 1936.

Oppenheimer, B. S.—Treatise on Medical Jurisprudence. 1935.

Bray, W. E.—Synopsis of Clinical Laboratory Methods. 1936.

Knopf, S. A.—Heart Disease and Tuberculosis. 1936.

N. Y. Academy of Medicine—Diseases of the Respiratory Tract. 1936.

Murray, J. W.—Examination of Patient and Symptomatic Diagnosis. 1936.

Stimson, P. M.—Manual of Common Contagious Diseases. 1936.

Medical Papers Dedicated to H. A. Christian. 1936.

Carey, E. J.—Medical Science Exhibits; Century of Progress. 1936.

Hansel, F. K.—Allergy of Nose and Paranasal Sinuses. 1936.

Auenbruegger, Leopold—On Percussion of the Chest. (translation). 1936.

Krause, A. C.—Biochemistry of the Eye. 1934.

Stieglitz, E. J.—Abnormal Arterial Tension. 1935.

Haden, R. L.—Dental Infection and Systemic Disease. 1936.

Hartman, C. G.—Time of Ovulation in Women. 1936.

Milbank Memorial Fund—Next Steps in Public Health. 1936.

Commarota, Angel—La tension mediana dinamica. 1936.

Southern Surgical Association—Transactions. 1935.

American College of Surgeons—Yearbook. 1935.

Rockefeller Foundation—Annual Report. 1935.

American Medical Association—New and Nonofficial Remedies. 1936.

A. M. A.—Council of Pharmacy and Chemistry—Reprint of Reports. 1935.

Bram, Israel—Exophthalmic Goiter and its Medical Treatment. 1936.

Homans, John—Textbook of Surgery. 1935.

Christopher, Frederick—Minor Surgery. 1936.

Stander, H. J., ed. Williams' Obstetrics. 1936.

Cuchny, A. R.—Textbook of Pharmacology and Therapeutics. 1936.

Christian, H. A. ed.—Oxford Medicine—Supplementary volume. 1936.

Gilbert C. Anderson, M. D., Sec.

## LOUISIANA STATE MEDICAL SOCIETY NEWS

### ANNOUNCEMENT BY COMMITTEE ON SCIENTIFIC WORK

Below are listed the Sectional Chairmen for the approaching meeting of our Society to be held in Monroe April 26, 27 and 28, 1937. According to all indications we have every reason to believe that we will have one of the most interesting and successful meetings in the history of our Society. Doctors who wish to be on the program should communicate with the Chairman of the Section in which they desire to appear.

Medicine and Therapeutics: Dr. Robert Bernhard, New Orleans

Pediatrics: Dr. Herman A. White, Alexandria

Nervous Diseases: Dr. J. D. Young, Shreveport

Bacteriology and Pathology: Dr. E. Von Haam, New Orleans

Radiology: Dr. L. W. Magruder, New Orleans.

Gastro-Enterology: Dr. Jos. E. Knighton, Jr., Shreveport

General Surgery: Dr. John G. Snelling, Monroe

Gynecology and Obstetrics: Dr. H. B. Alsobrook, New Orleans

Eye, Ear, Nose and Throat: Dr. Lionel Lorio, Baton Rouge

Urology: Dr. U. S. Hargrove, Baton Rouge

Public Health and Sanitation: Dr. W. H. Perkins, New Orleans

Orthopedic Surgery: Dr. A. Scott Hamilton, Monroe

### TRI-PARISH MEDICAL SOCIETY

The Tri-Parish Medical Society held its regular monthly meeting in Tallulah, Louisiana, October 6, 1936. After a most delicious supper at the Post-Inn Cafe in Tallulah the members assembled to the club room. The meeting was called to order by the president. The following members were present:

Drs. J. P. Davis, D. F. Davis, B. R. Burgoyne, H. C. Sevier, G. W. Gaines, Thomas P. Sparks, A. T. Palmer, Joseph Whitaker, and Wm. K. Evans. The visitors were Drs. B. J. Aymond, Acting Director of East Carroll Parish Health Unit, Dr. M. W. Hunter of Monroe, La.

The essayest was Dr. B. M. McKoin of Monroe, La; subject, "Gonorrhea and Its Usual Phases". Dr. McKoin's paper was discussed by Dr. Sparks and complemented by the members of the society.

Dr. Joseph Whitaker, Pres.
Dr. Wm. K. Evans, Sec.-Treas.

### FOURTH DISTRICT MEDICAL SOCIETY

The regular meeting of the Fourth District Medical Society was held October 6, 1936. Dinner was served in Shreveport Charity Hospital dining room at 7:00 P. M. Members and visitors were entertained by the Gilliam negro quintet through courtesy of Dr. Guy Caldwell.

The meeting was called to order by our president, Dr. McDade, of Minden, La., who introduced Dr. Kostmayer, the president of the State Society. Dr. Kostmayer enumerated the progress made by the Legislative Committee in Baton Rouge in having certain laws detrimental to organized medicine killed in committee. He also called attention to the progress being made in maternal welfare over the state.

Dr. J. P. Sanders of Caspiana, gave a very interesting paper on impotence, outlining the different types and stressing the treatment of each type.

Dr. J. R. Stamper opened the discussion and elected to show a motion picture illustrating a new suction type of treatment for undescended testicles.

Our guest speaker, Dr. Robert Strong, Professor of Pediatrics at Tulane University, presented an outlined talk and moving picture of vomiting in infancy. Discussion was opened by Dr. R. T. Lucas, of Shreveport.

Dr. George Wolfe, of Shreveport, presented a case of Schuller-Christian's Disease from the pediatric service of the Shreveport Charity Hospital.

Following the scientific program the following officers were elected by acclamation:

President: Dr. Tatum, of Homer, La.
Vice-President: Dr. J. B. Hall, Benton, La.
Secretary: Dr. Raymond Mays, Shreveport, La.
T. M. Oxford, Sec.-Treas.

## EXTENSION TEACHING IN OBSTETRICS

The Extension Lecture Courses in Obstetrics held in Minden and Ruston were well received by the respective medical groups.

Dr. Joseph W. Reddoch conducted the course in Minden and Dr. Harry Meyer the course in Ruston.

As already published the Committee on Medical Education will offer similar courses as follows:

October 26-30—Bastrop—Fifth District—Dr. A. Caire, Jr. Meeting in Court House.

November 2-6—Hammond—Sixth District—Dr. P. J. Carter. Meeting in City Hall.

November 9-13—Natchitoches—Eighth District—Dr. C. R. Mays. Meeting in Post Office Building.

November 16-20—Opelousas—Seventh District Dr. Peter Graffagnino.

November 30-December 4 — Jennings — Seventh District—Dr. T. B. Sellers. Meeting in Court House.

December 7-11—Franklin—Third District—Dr. E. L. King.

December 14-18—Donaldsonville—Sixth District —Dr. W. Levy. Meeting in Elks Hall.

## AN INVITATION TO THE SOUTHERN MEDICAL ASSOCIATION

The Southern Medical Association will hold its Thirtieth Annual Meeting in Baltimore, Maryland, November 17-20, 1936. All of the scientific and sectional meetings, as well as the technical and scientific exhibits, will be held in the new Fifth Regiment Armory. We believe that this will be one of the largest, if not the largest meeting in attendance that the Association has hitherto held. We also believe that from a scientific and clinical standpoint it will be as interesting as any previous meeting.

From the preliminary program, we confidently expect it to be worth the time and expense of any member in the profession to attend. Particular attention is being given to the various specialties, and an unusual effort is being made to interest the general practitioner.

Baltimore has clinical facilities and hotel accomodations to take care of all visitors with comfort. Extra-scientific activities will be numerous, including golf, boat trips, theatres, as well as many things of historic and picturesque value. Plans are being made for an offical After-Baltimore Cruise down the Chesapeake Bay, leaving late on Friday afternoon, November 20, visiting Yorktown, Jamestown and Williamsburg, and returning to Baltimore early Sunday morning, November 22.

Those interested in the Arts will find The Walters Art Gallery, The Municipal Art Building, The Maryland Historical Society, The Maryland Institute, The Peabody Institute sufficient to occupy their spare moments beyond anyone's conception.

We, the Profession in Baltimore, as entertaining hosts, and the Southern Medical Association extend to you, and through you to all members of the Medical Profession in your State, a cordial invitation to attend this Medical Convention. Perhaps this could be best called to their attention by publishing this letter in the Journal of which you are the Editor.

Sincerely yours,
Charles W. Maxson,
Chairman of Publicity Committee
Sydney R. Miller,
General Chairman, Committee on Arrangements

## NEWS ITEMS

Prof. F. E. LeJeune, of the faculty of the Graduate School of Medicine, The Tulane University of Louisianá, conducted a course on "Direct and Indirect Laryngoscopy" in connection with the meeting of the American Academy of Ophthalmology and Otolaryngology held in New York September 26-October 3, 1936.

Prof. C. C. Dauer, of the faculty of the Graduate School of Medicine, The Tulane University of Louisiana, attended the Rocky Mountain Tuberculosis Conference held at Albuquerque, New Mexico, September 28 and 29, 1936.

Dr. H. W. Kostmayer, Dean of the Graduate School of Medicine, The Tulane University of Louisiana, attended the meeting of the Fourth District Medical Society held at Shreveport, La. on October 6, 1936.

Dr. Henry W. E. Walther, senior urologist to the Southern Baptist Hospital, addressed the Second District Medical Society at Kenner on October 15. His subject was "Urinary Antiseptics."

Dr. Charles A. Bahn attended the recent meeting of the American Academy of Ophthalmology in New York and conducted a course in ophthalmic endocrinology, as well.

A large number of Medical Officers of the United States Public Health Service have been directed by the Surgeon General to proceed to New Orleans for the purpose of attending the American Public Health Association meeting.

## AMERICAN PUBLIC HEALTH ASSOCIATION

One of the largest medical meetings held for a long time in New Orleans took place October 20-

October 23. The attendance included physicians, Public Health workers and others from all over the country. Due to the fact that the meeting is being held while the Journal is in press, it is impossble to give any details of this great convocation.

## AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next written examinations and review of case histories of Group B applicants by the American Board of Obstetrics and Gynecology will be held in the various cities in the United States and Canada on Saturday, November 7, 1936, and on Saturday, March 6, 1937.

The next general examination for all candidates (Groups A and B) will be held in Atlantic City, N. J., on June 8 and 9, 1937.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania. Applications for these examinations must be filed in the Secretary's office not later than sixty days prior to the scheduled date of examination.

## BUREAU OF HUMAN HEREDITY

The object of this Bureau is collection on as wide a scale as possible of material dealing with human Genetics. Later, the tasks of analysis of material and distribution of the information available will be added.

The Bureau is directed by a Council representing medical and scientific bodies in Great Britain. It is affiliated to the International Human Heredity Committee, which ensures co-operation in all areas where research is proceeding.

The Council would be grateful to receive all available material from Institutions and individuals, furnishing well-authenticated data on the transmission of human traits whatever these may be. Pedigrees are particularly desired; twin studies and statistical researches are also relevant. As research workers and others who send in material may in some cases wish to retain the sole right of publication ( or copyright) those who so desire are asked to accompany their material with a statement to that effect.

Material should be given with all available details in regard to source, diagnostic symptoms and the name and address of the person or persons who vouch for accuracy. All such details will be regarded as strictly confidential.

Reprints of published work would be most acceptable. Further, many authors when publishing material may also have collected a number of pedigrees which they have been unable to reproduce in detail. It is the object of the Council that such records, by being included in the Clearing House, should not be lost.

Chairman: R. Ruggels Gates.

Executive Committee:

R. A. Fisher, J. B. S. Haldane, E. A. Cockayne, J. A. Fraser Roberts, L. E. Halsey (Hon. Treasurer), C. B. S. Hodson (Hon. Gen. Secretary).

115, Gower Street, London, W.C.1, England

## ARMY MEDICAL LIBRARY

The Medical Library Association at its Annual Meeting, June 22, 1936, passed a resolution recommending the appropriation of adequate funds for the Army Medical Library and its Index-catalogue, a copy of which is attached. In order to secure the widest possible attention in medical circles, this resolution is being distributed in four ways:

(1) by sending it direct to the President of the United States, and other government officials concerned (in January, 1937),

(2) by publication in medical journals,

(3) by sending it to our own members, with the request that they urge the organization of which they are a part, as well as all other local medical associations and institutions not members of our Association, to adopt similar resolutions to be sent to their local members of Congress, requesting their support of these measures,

(4) by sending it to the secretaries of national and state medical societies, with the request that they urge similar action by their organization.

Please urge your readers to request their Congressmen, upon the convening of the new Congress in January, 1937, to support these measures.

What is needed is to bring home to Congressmen the fact that the whole medical profession of the country does benefit by this great Library and its Index-catalogue, and does want it to have this material. Letters from individual doctors to their Congressmen would also carry weight. We hope and believe that a really concerted effort by the entire medical body will help to secure the desired funds for the Army Medical Library.

Janet Doe, Sec.

Dr. Homer Joseph Dupuy prominent ear, nose and throat specialist of New Orleans died September 28, 1936 at Hotel Dieu following recurrence of an illness which first afflicted him a year ago. Dr. Dupuy was noted for his pioneer work in connection with cancer of the upper jaw. He invented many surgical instruments which bear his name. He was Professor of oral surgery at the Loyola University School of Dentistry, Professor and Director of the Department of Otolaryngology at the Louisiana State University Medical Center and organizer and one of the senior surgeons of the nose and throat department of Charity Hospital. He had served as President of the Louisiana State Medical Society, President of the Orleans Parish Medical Society, President of the Hotel Dieu staff and Councilor of the Southern Medical Association. He served as a member of the New Orleans public library board and was appointed as the representative of Loyola University on the New Orleans Police board. He was also a member of the Shakespearean Society. Dr. Dupuy was the author of many professional papers.

Dr. James R. Daboval, surgeon and physician of Arabi, Louisiana, died at Mercy Hospital, New Orleans October 6, 1936 after an illness of three weeks. He was graduated from Jesuit High School and got his degree in medicine at the St. Louis University. He had practiced for nine years and was a member of the Loyola faculty and of the Mercy Hospital staff.

Dr. Joseph Hume, veteran professor of urology at Tulane University for twenty five years before his recent resignation, died at his home in New Orleans Saturday, October 17, 1936 after an illness of three weeks. He was nationally known as a urologist and was consultant in that field at Touro Infirmary.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census reports that for the week ending September 18 there were 146 deaths in the city of New Orleans, divided 93 white and 53 colored. This gave a rate for the group as a whole of 15.9, for the white 14.2 and for the negro 19.9. The infant mortality rate for this week was 87, with the almost unheard of occurrence of the white race being higher than that of the negro. The following week, ending September 26, there was quite a considerable increase in the deaths of the city due largely to the marked increase in the negro death rate which was 31.9 as contrasted with the white of 13.3. The total death rate was 18.7, there being 172 deaths apportioned 87 white and 85 colored. There was a big increase in the infant mortality which was 139 with the deaths divided almost equally between the two races. The following week, ending October 3, saw a sharp drop of exactly 40 deaths in the city as contrasted with the previous week. The 132 deaths, divided 73 white and 59 colored, gave a rate for the city as a whole of 14.3, for the white 11.2 and for the negro 22.1. The infant mortality rate this week was 64.

For the first 40 weeks of the year the death rate in New Orleans has been somewhat higher than that of the corresponding 40 weeks of the previous year. So far for 1936 the rate has been 18.5 as compared to 16.2 for last year. The year 1936 seems to be a more lethal year than the previous one because, glancing down the list of cities elsewhere, in practically every instance the rate is above that of 1935. Just why there should be more deaths this year than last, it is impossible to state definitely . It may be now that the depression is on its way out and people are living higher, more are getting killed in automobile accidents and more misbehaving. Some sociologists may contend that now we are beginning to feel the effects of the barren years on the health and nutrition of the child population.

## INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the State of Louisiana, which contain the following summarized information: For the week ending September 19, the following diseases appeared in double figures; 47 cases of malaria, 40 of pneumonia, 31 of cancer, 20 of pulmonary tuberculosis, 15 each of syphilis and gonorrhea, 14 of typhoid fever and 11 of diphtheria. The typhoid fever cases, as well as those of diphtheria and scarlet fever, were scattered throughout the State. One case of poliomyelitis was reported from Caddo Parish and one from LaSalle. For the week ending September 26, malaria again led all reported diseases with 42 cases listed, followed by 28 cases of gonorrhea, 25 of pneumonia, 23 of typhoid fever, 20 each of pulmonary tuberculosis and cancer and 16 of diphtheria. Davis Parish with 5 cases and Acadia with 4 led the parishes of the State reporting typhoid fever. One case of poliomyelitis was reported from Bienville Parish. The next week, ending October 3, was characterized by the reported cases of syphilis, as is accustomed, leading all other reported diseases in this week with 75 cases listed. This was followed by 53 cases of malaria, 38 of pulmonary tuberculosis, 31 of cancer, 27 of pneumonia, 18 of diphtheria and 17 each of gonorrhea and typhoid fever. The typhoid fever cases were scattered for the most part all through the State, but 6 instances were reported from Caddo Parish. From the same Parish were reported 3 cases of undulant fever. Beauregard Parish reported one case of poliomyelitis. In the week ending October 10, malaria, for the third week of the last four, was at the top of the diseases listed by the Bureau of Epidemiology with 55 cases. This was followed by 44 cases of pneumonia, 35 of pulmonary tuberculosis, 27 of cancer, 26 of syphilis, 15 of diphtheria and 14 of influenza. In this week there were only 4 cases of typhoid fever reported. Another case of poliomyelitis was listed, this time from St. Landry Parish. Amongst the other unusual diseases listed were 1 case of typhus fever from East Baton Rouge Parish, 1 of undulant fever from Calcasieu and 1 of paratyphoid fever from Lafourche.

## WOMAN'S AUXILIARY

### Louisiana State Medical Society

President—Mrs. James Byron Vaughan, Monroe.

President-Elect—Mrs. George D. Feldner, New Orleans.

First Vice-President—Mrs. F. G. Ellis, Shreveport.

Second Vice-President—Mrs. T. H. Watkins, Lake Charles.

Third Vice-President—Mrs. E. B. Middleton, Homer.

Fourth Vice-President—Mrs. R. R. Arceneaux, Welsh.

Recording Secretary—Mrs. C. Grenes Cole, New Orleans.

Corresponding Secretary—Mrs. Joseph P. Brown, Monroe.

Treasurer—Mrs. Courtland P. Gray, Monroe.

Parliamentarian—Mrs. R. T. Lucas, Shreveport.

To the Members of the Woman's Auxiliary to The Louisiana State Medical Society: As we slip from vacation land into the harness of routine work, let us get into full swing for another year of striving and serving. An auxiliary is not a woman's club, but a service group to the medical society. To serve an organization we must do those things which please it and forward its interests. So well did its organizers plan, that the policies and objectives have required no changes. Quoting from the speech of the public relations committee of the woman's auxiliary to the A. M. A., "The particular task is that of education of the public in accepting health leadership from the medical profession. It earnestly seeks, not only to defend human life, but to surround it with safeguards through education. The busy physician cannot give all his attention to demands of truth on which its fortifications are built, so we wives who are willing to follow their leadership are most logical of the laity to carry out the aims of the profession. As an individual wife, one may be accused of promoting her husband; as a member of the medical auxiliary she works under control of organization, thus personalities are banned."

In our Louisiana Auxiliary, the Public Relations program has been especially emphasized, consequently, we should become acquainted with health conditions in our own parish and state. We should know the phases of health which are being stressed, and those which are being neglected. It would be well to know the aims of our own medical society and other organizations and how these can best work together to bring desired results.

Let us plan to give Public Relations programs so that we may make people more health minded, bring cooperation of efforts along lines of health and make it a force in securing our goal. We can educate our future citizens to be happy by constantly trying to promote community conditions which will maintain high standards of health and medical professional leadership in all such activities.

A letter from our national president, Mrs. Fitzgerald, expresses the hope of strengthening the organizations by bringing more closely together, state and national groups. "We should put forward our untiring efforts to enlarge the circulation of Hygeia, so that this authentic magazine many carry its message to as many people as possible."

I should like to urge the closer relationship of our state and parish auxiliaries. Let us keep in mind during the fall and winter meetings our "Doctors Day" celebration and activities regarding the fund for indigent physicians. Also let us be reminded of the key-note of our first medical auxiliary; that of promoting closer contact between the families of physicians; to assist in lightening the burdens of humanity and to help preserve the health of the people.

Finally in extending my very best wishes to each member of the woman's auxiliary to the Louisiana State Medical Society, I am again asking your unlimited cooperation.

Cordially yours,<br>
Mrs. J. B. Vaughan, President.

## OUACHITA PARISH

The program of the Ouachita Parish Auxiliary starting with the first fall meeting is as follows:

October 21—Luncheon, with Mrs. Mengis, Mrs. Rizzo and Mrs. Walsworth as hostesses. Mrs. Pracher read a biography of Dr. E. Lewis.

November 18—Mr. Graves, Mrs. Peters, Mrs. Milam, Mrs. Gregory and Mrs. Williams will be hostesses on a boat ride to Pine Top.

December 16—Christmas offering, with Mrs. Prather, Mrs. Vaughan and Mrs. Wright as hostesses.

January 20—Luncheon. Mrs. McHenry, Mrs. Gray and Mrs. Perot will be hostesses with Mrs. McHenry reading a paper on "Romance of Medical Men of the South."

February 17—Luncheon, with Mrs. Peters and Mrs. Shlenker as hostesses and Miss Sue Graves will give a travel talk.

Mrs. William Bendel,<br>
Publicity Chairman.

## ORLEANS PARISH

The Woman's Auxiliary to the Orleans Parish Medical Society enjoyed its first meeting and reception of the Fall season on Wednesday afternoon, October 14. We all felt the enthusiasm and inspiration of our new President, Mrs. W. P. Gardiner.

Committees have been very busy during the summer making their plans for the winter activities and this promises to be an interesting year full of accomplishments. Among the most worthwhile projects is the co-operation of the Auxiliary with the Tuberculosis and Public Health Association of New Orleans in planning for health education in the schools. Another objective of this year's program, will be the re-conditioning of books in the Medical Library of the Orleans Parish Medical Society. These books and medical journals are at the disposal of both Tulane and L. S. U. medical students as well as members of the Medical Society.

Our Social Hygiene committee also has plans for extending its work into the institutions of the city.

During the afternoon we were fortunate in having with us a guest speaker, Dr. Frederick L. Fenno, President of the Orleans Parish Medical Society.

Following the program, everyone enjoyed the tea hour with the full opportunity of visiting with friends.

Mrs. Edgar Burns,
Publicity Chairman.

### JEFFERSON DAVIS PARISH

The Jefferson Davis Parish Medical Auxiliary resumed its regular meetings October 13, after the summer vacation. This meeting was held at the home of the President, Mrs. G. W. Remage in Jennings.

Last year, the Auxiliary gave the high schools of Jennings and Welsh an introductory subscription of six months to Hygeia. At this meeting it was decided to renew the subscriptions for a period of one year.

We acquired our third bride since this time last year. With two or three more prospects, we may be entitled to a citation in another year.

Mrs. John M. Whitney is our new bride member Mrs. Whitney, formerly of New Orleans, is the wife of the Parish Health Unit Director.

There was no program for this meeting, but a social hour was enjoyed during which time the members told of their summer pleasures.

Mrs. Claude A. Martin,
Publicity Chairman

Dear Auxiliary Members:

Reading this issue of the Journal is like arriving home after a vacation trip. No matter how far or where you have been, it is always a happy moment when we step over the threshold of our own door and come in contact again with the beloved and familiar things that make up a home.

Our President's inspiring, beautiful message is like our home, and the news from the parish auxiliaries are the many furnishings and gadgets that make the home beautiful and livable. Let us keep on making our home more beautiful and let the happiness of the one big family that we are, shed its lustre upon the community in which we live.

Mrs. George D. Feldner, Chairman,
Press and ublicity.

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## BOOK REVIEWS

*Dental Infection and Systemic Diseases*: By Russell L. Haden, M. A., M. D. 2d ed. rev. Philadelphia, Lea and Febiger, 1936. pp. 163. Price $2.50.

Dr. Russell L. Haden, Chief of the Medical Division, Cleveland Clinic, Cleveland, Ohio, formerly Professor of Experimental Medicine, University of Kansas School of Medicine, Kansas City, Kansas is certainly sufficiently authoritative to publish his findings and work.

Thirty-five case histories are reported where removal of dental focal infection improved systemic conditions in humans, or bacteria from the dental infections produced similar lesions in rabbits. This work is certainly worthy of full cognizance of both the medical and dental professions.

The author's discussion of laboratory technic to verify clinical and radiographic findings is elaborate with detail and statistics. Periapical, periodontal and residual infections are all treated in detail with stress laid upon the inadequacy of radiographic and blood chemistry in determining the potential danger of the dental infection. His just plea is for prevention of decay and pulpless teeth.

F. Harold Wirth, D. D. S.

*International Clinicis*, Vol. II—June, 1936. Philadelphia, J. B. Lippincott Co., 1936. pp. 327. Price $2.50.

The progressive physician constantly on the alert for reliable information to keep him abreast of the times can do no better than review the issues of the International Clinics. One soon learns that here will be found articles of paramount importance in all branches of medicine, splendidly and fully presented and accompanied by fine illustrations and bibliographies. The present volume is worthy of its predecessors. Among the many contributions is a comprehensive study of the

"Erythrocyte Sedimentation Test" by M. M. Wintrobe, M. D. Shortage of space does not permit of a further description of the book.

I. L. Robbins, M. D.

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*Clinical Heart Disease*: By Samuel A. Levine, M. D. Philadelphia, W. B. Saunders Co., 1936. pp. 445. Price $5.50.

Written in the flowing easy style of the master, thoroughly at home in his subject, this book has much to charm and inform the reader who would know the diagnostic trends and therapeutic maneuvers of modern cardiology. The author informs us that he has not attempted to write a text book in the classical style. No bibliographical matter is to be found in the book and the authorities quoted are exceedingly few. He acknowledges his debt for the many borrowings he has made and in an inimitable way presents his subject so that one is aware that this book is the outcome of very wide reading and a very large personal experience and the discriminating wisdom that comes with time, thoroughness and trials. Not all of the subject matter is of the same degree of excellence. To some there may be disappointment in not finding more frequent allusions to the literature. But as a whole it is a splendid achievement and one which must be noted by those interested in cardiology. Of particular interest to the reviewer are the many clinical observations to which the author calls attention and his ability to reveal to the general practitioner the possibility of practising modern cardiology practically, properly and economically. His remarks on prognosis are splendid.

I. L. Robbins, M. D.

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*Time of Ovulation In Women*: By Carl G. Hartman, Baltimore. The Williams & Wilkins Company, 1936. pp. 226. Price $3.00.

This complete compact little volume of 198 pages deals with the physiology of reproduction, accentuating ovulation time. Different methods of determining the period of ovulation are discussed and evaluated. The author's excellent studies of this subject on Macaccus rhesus monkeys are included. By comparison and critical studies of other workers in this field, he concludes that there is a definite period of ovulation in the female with a relative, though still uncertain, "safe period." An excellent volume in every detail.

Conrad G. Collins, M. D.

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*Allergy of the Nose and Paranasal Sinuses*: By French K. Hansel, M. D., M. S. St. Louis, C. V. Mosby Co., 1936. pp. 820. Price $10.00.

This is most excellent and comprehensive monograph dealing with the anatomy, physiology, biochemistry, bacteriology and histopathology of the paranasal sinuses. The subject matter is discussed from various points of view presenting the opinions voiced by authorities in these subjects. The chapters on the chronic inflammatory diseases of the nose and paranasal sinuses is well worth reading. The value of zinc ionization, its possibilities and hazards are thoroughly considered. Hyperplasia of the sphenoid and ethmoids and the presence of polyps are frequently true manifestations of allergic rhinitis and this condition is now being recognized more frequently than in the past.

This monograph should be productive of disseminating a vast amount of knowledge relative to that elusive subject of allergy. It contains a wealth of valuable information well compiled and excellently presented.

F. E. Lejeune, M. D.

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*Disability Evaluation*: Principles of Treatment of Compensible Injuries: By Earl D. McBride, B. S., M. D., F. A. C. D., Phila., J. B. Lippincott Co. 1936. pp. 623. Illus. Price, $8.00.

This book fills the demand for a publication that will give the industrial surgeon a comprehensive, accurate and scientific work covering the field of diagnosis, treatment and prognosis in compensible cases. Besides this the laws governing such cases are given in full. Particular attention is given to methods used to determine the percentage of disability following all types of crippling accidents and these methods are based on arguments and data that may be succinctly presented to insurance carrier, judge or jury. They form a welcome substitute for the usual guesswork. The chapters devoted to treatment are particularly thorough. There is a distinct leaning towards the newer methods of skeletal traction diagrams to drive home the lessons.

The following is a partial list of the chapter headings:

Workmen's Compensation Laws.
Standardizing Disability Evaluation Methods.
Examination of the Disabled Person.
Examination of the Back.
Examination of the Hip.
Examination of the Knee.
Examination of the Head Injury Cases.
Ankylosis of Various Joints.
The Disability of Fractures.

The reviewer has read this book with genuine enjoyment and believes it to be an indispensible addition to the literature on industrial surgery.

E. A. Ficklen, M. D.

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*Exophthalmic Goitre and its Medical Treatment*: By Israel Bram, M. D. Second edition completely revised and enlarged with 79 illustrations. St. Louis. The C. V. Mosby Company, 1936. pp. 456. Price, $6.00.

This author treats his subject not as a specialist, though he is one, but discurses with a partisan thought that Graves' disease is a malady that can be most successfully treated by medical, psychotherapeutic and hygienic measures. He emphasizes his conviction, e.g., that the disease is constitutional and refuses to subscribe to the belief that it is of thyrogenous nature. In this latter he is in accord with many; however, throughout his book, he is augmentative, and makes his work thereby, most interesting and instructive.

Chapter I deals with the nature and etiology of the disease, yet it leaves a desire for a definition and an acceptable pathogenesis. It is a chapter of, it is, and it isn't. Exophthalmic goitre is a disease with a protrusion of eye that may exist without a protrusion.

It is a goitre without a goitre. Exophthalmic goitre sine exophthalmic goitre. It is realized how correct it is to use psychotherapy until a better understanding of its pathogenesis is had. Focal infections, general infections, intoxications, sympathetic disturbances, and so on: each is well considered and left with the following: "that Graves' disease is a dysfunction—, and usually (not constantly) accompanied by hyperplasia of the thyroid gland and by exophthalmos."

In Chapter II, psychic trauma in the etiology of exophthalmic goitre is considered. The author discusses in Chapter III, symptomatology: in IV and V, the thyroid gland and exophthalmos. The latter chapter is disposed of in a few pages as if the protrusion of the eye was but a small part in exophthalmic goitre. All theories advanced in the pathogenesis of the eye's protrusions has to do with a force from behind the eye. The action of the oblique muscles pulling the eye from the orbit has been neglected as a hypothesis, yet most tangible.

Read the book, particularly if you are not a surgeon. It deals with the treatment other than surgery. It is full of most interesting observations.

. Theodore J. Dimitry, M. D.

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*Recent Advances in Genito-urinary Surgery*: By Hamilton Bailey, M. D., F. R. C. S. and Norman M. Matheson, M. B., F. R. C. S., M. R. C. P. Phila., P. Blakiston's Son & Co., Inc., 1936. pp. 213. Price

This little book of 200 pages, co-authored by two British urologists, is designed to cover only that which is new, or comparatively new, in the field of urology. In addition, they have limited the discussion of each topic to the essential points. As the result, the book is unusually compact, but, at the same time, is complete in the sense that all phases of urological practice are considered. The work can be of value only to advanced students of urology or those in active practice, as it presumes a knowledge of the essential features of all subjects discussed.

Some chapters are particularly well presented; notably the first, on intravenous pyelography, in which the advantages of this method of diagnosis and its technic are set forth in detail, followed by a frank discussion of its limitations.

On the other hand, in many instances one finds only a casual reference to a subject, as in the case of hypospadias. Only six lines are devoted to this and the reader is referred to special articles and standard texts for additional information.

From this it may be seen that this book is in no way to be considered a complete source of information on all that is new in urological practice, but is rather an index and summary of recent and substantial advances.

W. E. Kittredge, M. D.

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*A Textbook of Surgery*: By John Homans, Springfield, Charles C. Thomas, 1935. pp. 2131. Price, 8.00.

In 1206 pages this textbook gives the student a thorough introduction to the study of surgery. Most of the text is concerned with the clinical aspects of surgical affections, but one of the admirable qualities is that the historical aspects have not been entirely forgotten. At the beginning of each chapter is a short historical review. Technics of surgical procedures are not given in detail but sufficient for the student. For the practitioner it is a good review of the scholastic presentation and for the student it is one of the good textbooks of surgery.

Howard R. Mahorner, M. D.

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*Synopsis of Diseases of the Heart and Arteries*: By George R. Herrmann, M. D., Ph. D. St. Louis, C. V. Mosby Co. 1936. pp. 344. Price $4.00.

Doctor Herrmann has written a book that should prove of inestimable value to the student and the practitioner. He has admirably succeeded in synthesizing succinctly significant subject matter with a splendid simple literary style. Complete yet concise, it conveys to the student and the doctor, crowded for time and unable at any moment to refer to large text books, the modern concepts of modern diagnostic procedures and therapeutic measures that are factual and practical. The illustrations are both numerous and well chosen. The book is small and handy. To those of us who know Dr. Herrmann it is no surprise to note the tremendous amount of material that he has succeeded in incorporating into this comparatively slim book. It is simply a confirmation of the fact that the author is among the leading authorities in cardiology in this country.

I. L. Robbins, M. D.

*Minor Surgery*: by Frederick Christopher, S. B., M. D., F. A. C. S.. 3rd ed. reset. Phila., W. B. Saunders Co., 1936. pp. 1030. Price $10.00.

In the third edition of his book on minor surgery the author has included all outstanding recent contributions to surgical literature. Some of the new material deals with such subjects as bacteriophages, DeTakats method of ambulatory vein ligation, leech treatment of phlebitis, Wangensteen's stomach suction apparatus, and injection treatment of hernia.

As is so well said in the foreword by Kanavel, "His book is no mere compilation from previous texts; its source is his wide experience, not only in his field, but in general surgery and from this experience he has chosen wisely and emphasized well".

The older sections which have been amplified include: fractures, which are covered most thoroughly; head injuries; pilonidal sinus; blood transfusion; treatment of ileus.

Chapter XXIV titled, "The Surgical Intern" covers the thoughts of every surgeon as to the interne's duties. It should be read by every medical student before his sojourn into a hospital.

In the reviewer's opinion, the only criticism of this book on minor surgery is that it gives so little space to a discussion of the subject of bandaging, which is essential for efficiency, comform and appearance.

In conclusion, this revised edition covers the subject of minor surgery most thoroughly. For a text-book compiled from so many surgical writers it has continuity and is most enjoyable reading.

Emile Bloch, M. D.

## PUBLICATIONS RECEIVED

P. Blakiston's Son & Company, Philadelphia: Recent Advances in Radiology by Peter Kerley.

Butterworth & Company, Ltd., London: Trachoma by A. F. MacCallan, C. B. E., M. D., F. R. C. S.

Colwell Publishing Company, Champaign: Dr. Colwell's Daily Log for Physicians.

S. B. Debour, Publishers, Chicago: The Surgical Technic of Abdominal Operations, by Julius L. Spivack, M. D.

Lee Furman, Inc., New York City: The Riddle of Woman by Joseph Tenenbaum, M. D. To Raise These Halt by Fred Rothermell.

Lea & Febiger, Philadelphia: Principles of Human Physiology by C. Lovatt Evans, D. Sc. A Textbook of Pharmacology and Therapeutics by Arthur R. Cushny, M. A., M. D., LL. D., F. R. S. Roentgen Interpretation by George W. Holmes, M. D. and Howard E. Ruggles, M. D.

The National Committee for Mental Hygiene, New York City: Research in Dementia Precox by Nolan D. C. Lewis, M. D.

The Rockefeller Foundation, New York City: International Health Division—Annual Report 1935.

W. B. Saunders Company, Philadelphia: Oral Diagnosis and Treatment Planning by Kurt H. Thoma, D. M. D. A Textbook of Obstetrics by Edward A. Schumann, A. B., M. D., F. A. C. S.

Charles C. Thomas Publishing Company, Springfield: Diseases of the Nails by V. Pardo-Castello, M. D. The Clinical Use of Digitalis by Drew Luten, M. D. A Textbook of Surgery, Fourth Edition, by John Homans, M. D.

Waverly Press, Inc., Baltimore: Principles and Foibles of Cancer Research by William Rienhoff, Sr., M. D., F. A. C. S.

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# NUTRITIONAL DEFICIENCY "DISEASE."*

W. S. KERLIN, M. D.
SHREVEPORT, LA.

The realization that disease may result from certain unkown substances in the diet has materialized only within recent years. Many signs and symptoms have been known to result from defects in secretion of the endocrine glands for a long period of time. With the discovery of the vitamins and the proof that they are essential to normal nutrition, signs and symptoms due to a deficient supply of these specific elements are being more frequently recognized. However, we are still largely dependent on the occurrence of a deficiency disease to recognize that a patient has received an inadequate supply of vitamins. It is worth nothing that no matter how deficient a diet may be, the authorities who prescribe it, or the people who habitually consume it, will quite honestly state their belief that it is sufficient. If an individual with a normally functioning gastrointestinal tract will only follow the dictates of a normal appetite in choosing his or her food, there will be little likelihood of developing a deficiency disease. As a rule, food fadists and individuals trying to lose weight, do not choose to follow their normal appetites, which no doubt, adds to the number of deficiency states. On the other hand, a large number of people live under conditions which prevent freedom in the choice of food. It is this group which probably suffers most from deficiency disease.

As a result of the newness of vitamin therapy and the spectacular results often obtained, a number of abuses have grown up regarding their therapeutic use. These abuses are exaggerated by the enthusiasm of the laity, manufacturers of vitamins, and influenced further by some members of the medical profession. The public has been persuaded to believe that vitamins are rare and expensive substances, and if the right trade name is selected, wonderful improvement in health is to be expected by those who consume them. The use of ordinary, inexpensive, common, natural foods would frequently suffice.

Inasmuch as the specific elements must be taken in as food or formed directly from the food, the condition of the gastrointestinal tract is of vital importance in deficiency disease. It is probable that some of the deficiency states which develop will be the result of mechanical or chemical alterations in the gastrointestinal tract. At present it is recognized that the changes in the gastrointestinal tract which may lead to the development of such conditions include atrophy of the mucous membrane and changes in the secretion of the normal digestive juices. Gastric hypo-acidity, achlorhydria and achylia gastrica, commonly found, if sought for, in nutritional deficiency states, likewise interfere with the proper assimilation of food. The loss of normal gastrointestinal secretions resulting from vomiting and diarrhea, further seriously interfere with the proper absorption of the food elements. Mechanical factors such as benign and malignant lesions, which obstruct or prevent contact of foods with a sufficient area of the gastrointestinal mucosa, also prevent proper absorption. Eusterman and O'Leary reported thirteen cases of pellagra resulting from benign and malignant lesions of the stomach occurring as a result of dysfunction and obstruction.

While beriberi, scurvy, pellagra, and sprue present certain signs and symptoms, such conditions usually represent extreme deficiencies, but milder symptoms occur in a minor form with much greater frequency, and it is important that they be recognized earlier. There is frequently an overlapping of symptoms of deficiency of the different nutritional elements and a deficiency in one may initiate or influence a deficiency in another. An example of this is the rather frequent appearance of pellagra and pernicious anemia concurrently. In these advanced nutritional states many different tissues and organs may be affected by the lack of the specific factors. Haden believes it is more nearly correct to consider clinical deficiency symptoms as deficiency disease, rather than deficiency diseases. Neuritis of pregnancy and alcoholism formerly thought to be due to some specific toxic agent, are now known to be due to the lack of specific nutritional elements.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

Lettson first described alcoholic polyneuritis in 1787, and a direct neurotoxic effect of alcohol has been considered the causative agent. Six years ago, according to Strauss, Shattock suggested that the disease was caused chiefly by failure to take or assimilate food containing sufficient vitamin B and might be properly regarded as beriberi. In an attempt to prove this hypothesis Strauss selected ten patients suffering from alcoholic polyneuritis and allowed them to continue their customary daily intake of from one pint to one quart of spiritous liquor on condition that they consume a well balanced high vitamin diet supplemented with yeast or its products. Improvement in the neuritis occurred in every instance. He concluded that alcoholic polyneuritis does not result primarily from a direct neurotoxic effect of alcohol, but is probably the result of a dietary deficiency aided in some instances by disturbed gastrointestinal function.

The following is an illustrative case: Polyneuritis or dry beriberi (vitamin B deficiency); scurvy (vitamin C deficiency.)

### CASE REPORT

L. L. S., a white male, aged 32, was admitted to the hospital October 27, 1933 with the following complaint: Severe burning pain in feet and legs. The patient stated that three months prior to admission a run down state necessitated the removal of infected tonsils. After about ten days his feet began to pain and burn him. Two weeks later, as a result of this continued pain and burning, all his teeth were extracted. Pyorrhea and receding gums had been troublesome for an indefinite period of time. The peripheral neuritis became more aggravated and he grew much weaker. His diet was further restricted after the removal of his teeth. He subsisted principally on soft, starchy foods until his admission to the hospital. For the relief of the excruciating pain he had been taking codein at frequent intervals. His past history was negative except that he had imbibed rather freely of spiritous liquors for the past several years and was informed that alcohol was the probable cause of the neuritis. On admission to the hospital he was barely able to walk due to weakness and severe pain in feet and legs. On account of ill health and despondency, suicide had been contemplated.

Examination: The patient was edentulous and had not used artificial teeth, superficial reflexes normal, the knee and tendo-achilles moderately exaggerated. Areas of anaesthesia and hyperesthesia involved the feet and legs. The soles of the feet were very sensitive to touch. The pulsation was normal in the dorsalis pedis, anterior and posterior tibial arteries. The pulse rate was extremely rapid and the blood pressure was 110/90. Physical examination otherwise essentially negative. The white, differential and red cell counts were within normal limits, hemoglobin 85 per cent, urine chemically and microscopically negative for abnormalities, blood Wassermann negative.

As a result of the extreme restlessness and delirium hot wet packs were used with beneficial effects. The use of codein was gradually withdrawn. He could not be encouraged to take a sufficient variety of nourishment. A severe stomatitis developed and the tongue became very painful and red which further interferred with the taking of nourishment. Shortly thereafter he developed an intractible bloody diarrhea. He also complained of intense burning throughout the entire gastrointestinal tract. It was then realized that he had a severe nutritional disturbance which probably accounted entirely for the polyneuritis and gastrointestinal symptoms. The gastric analysis revealed a total acidity of 15 and no free hydrochloric acid. The symptoms became more aggravated and his heart action continued extremely rapid and out of proportion to his general condition and temperature, which was never above 100 degrees. To complicate matters and to further interfere with his nutrition, nausea and vomiting ensued and he was unable for a period of several days to retain sufficient nourishment. It was difficult to restrain him in bed. The pain in feet and legs became unbearable and he continued to express a desire to destroy himself. The severe gastrointestinal symptoms finally subsided and on a diet of pureed vegetables and fruit juices he began to show some improvement, and was discharged by ambulance twenty-five days after admission. He was instructed to continue a very liberal and mixed diet rich in vitmains, especially vitamin B. In addition he was advised to take a tablespoonful of brewer's yeast three times daily. On this dietary regime he continued to show improvement and was able to return to his office on crutches within one month. He improved more rapidly after obtaining properly fitted false teeth.

For a number of days he had noticed a blurring of his vision. Examination of eye grounds revealed a beginning optic neuritis. After a few weeks, his vision cleared and the optic neuritis subsided. Gastric analysis at this time showed a total acidity of 27 and free hydrochloric acid 9. He was encouraged to continue on the outlined diet and yeast. His improvement was slow but progressive and in May 1934 he was able to walk without crutches. He showed considerable gain in weight. As a result of a digestive upset, consisting of fullness and discomfort after eating, a gastric analysis was again made, revealing a total acidity of 96 and a free hydrochloric acid of 74. Correcting an indiscretion in diet brought about improvement of this complaint. At present he is in excellent health.

This case illustrates how confusing a diagnosis may appear. In the first place the symptoms of neuritis did not manifest themselves during the several years that he imbibed rather freely of spiritous liquor, but appeared only after his diet had been severely curtailed.

From minor symptoms of a partial deficiency he was precipitated into the zone of a complete deficiency disease by the removal of teeth and tonsils. This deficiency state resembled in every detail dry beriberi. This case further illustrates the importance of properly fitted teeth in the prevention of nutritional deficiency.

Within the past decade much information has been obtained regarding anemia and its association or dependence on defective or deficient nutrition. More complete information is yet to be obtained concerning the means of production of such an anemia (anemia associated with nutritional deficiency). At present there is proof that anemia may arise because of a lack in the body of any one of at least three classes of dietary substances: (1) iron, (2) vitamin C, (3) a substance found abundantly in the liver and to a lesser extent in certain other organs. Absence of this last named substance makes impossible normal blood formation, and anemia of the so-called pernicious type develops.

The effective substance or substances are becoming less mysterious as a result of the recent brilliant experiments of Greenspon who has provided a key to the understanding of the subject. As a result of these experiments he has shown that when peptic activity is sufficiently diminished or prevented by neutralization and low temperature, the principle in gastric juice alone is an effective anti-anemic agent. On the basis of these results he has reinterpreted Castle's experiments. The beef (or other source of extrinsic factor), when incubated with normal gastric juice binds pepsin and prevents it from inactivating the anti-anemic factor. It is therefore no longer necessary to assume the existence of an extrinsic factor.

In the human as stated above, dietary deficiency is seldom confined strictly to one factor. The combined deficiency of iron and the material effective in pernicious anemia is not rare in the same individual. Multiple deficiencies may occur in patients with anemia but usually one of the deficiencies is outstanding. The individual who has received for a long time only just enough of a nutritional substance such as vitamin or mineral to maintain health, may be precipitated into the zone of partial deficiency with the appearance of infection. No clinical signs of deficiency are likely to appear in this instance. If, however, the individual's poor state of nutrition permits the appearance of symptoms attributable to deficiency, and infection develops, then anemia, achlorhydria, polyneuritis, scurvy or some other nutritional defect is likely to appear.

The supplementary effect of diet must not be overlooked in observing the influence of specific substances. Therefore it is important that an adequate diet be taken by everyone. Knowledge of partial deficiency states in the human is still limited. It is obvious that more information is needed as to how to determine more precisely such states. It is a problem of concern to the health of every individual.

Case 2 represents multiple deficiency disease, macrocytic anemia, scurvy and sprue.

### CASE REPORT

N. L. a white male, aged 68 years, a native of Illinois, complained chiefly of extreme weakness, progressive loss in weight, sore mouth and diarrhea. His illness began gradually two years ago with loss of appetite. On an empty stomach he had a sensation of fulness as if he had just completed a meal. For the past few months he had been unable to take but very little food at a time, due to the fact that his stomach apparently would not accommodate it. Weakness came on slowly but has progressed to the point where he is unable to be up and about except for a few hours at a time. He has been practically bed ridden for the past five months. His original weight was 140 lbs; his present weight is 75 lbs. Constipation has alternated with diarrhea almost since onset of his present illness. He averages about four very copious, light colored and fluffy stools daily at present. For the past several months his mouth and tongue have been very sore and bleed occasionally.

He has always lived in Illinois and came to Louisiana about five months ago. Shortly before coming South he was in a sanitarium in Illinois for two weeks. His local doctor wrote that following a roentgen ray examination of the gastrointestinal tract, he concluded that he had a cancer of the stomach. His family and past history were irrelevant.

On inspection he presented a markedly emaciated and moderately anemic appearance. His expression was bright in spite of being bed ridden. The skin was moist and thin. The subcutaneous fat over the entire body was entirely absent, which is contrary to what one usually finds in pernicious anemia. General muscular atrophy was present. The systolic blood pressure was 110, diastolic 80. The superficial and deep reflexes were normal, the knee jerk however, was sluggish. He was edentulous, plates fitted poorly, rendering them useless for mastication. The tongue was red, glazed, fissured and cartilaginous in appearance. The heart and lungs were normal. The abdomen was doughy and tympanitic. The upper border of liver dulness was in the seventh interspace, the lower border not palpable, (indicating considerable shrinkage of the liver). The total red cell count was 2,592,000, hemoglobin 65 per cent, total leukocyte count 4,350, neutrophiles 51 per cent, small lymphocytes 44, large 5 per cent, eosinophiles 2 per cent. The red blood cells were macrocytic in appearance. Blood Wasserman negative. Urine analysis negative except for a few hyaline and granular casts. Gastric analysis showed a total acidity of 44 and free HCl of 20. The stool was bulky, slate colored, very offensive, acid in reaction, no blood, parasites or ova but contained numerous fatty acid crystals, some free fat and vegetable cells. The duodenal content was scanty and digested one per cent starch in equal proportions but did not digest egg white.

He had been on a very limited diet, consisting mostly of milk and fat meat. All fat was eliminated from his diet and he was instructed to partake liberally of lean meat, pureed vegetables, and very sparingly of starches and sweets. In addition he was instructed to take 300 grams of liver extract daily. In the way of medication, panteric tablets were prescribed. Three months later he had undergone marked improvement with a gain of 37 pounds. His appetite was voracious; stomach capacity had increased considerably. The stools had changed to a brownish color, were less bulky and averaged one to two daily. The tongue was less glazed, red and painless. There was a noticeable increase in subcutaneous fat and general muscular development. The duodenal content was abundant and thick, showing active digestion of starch and protein.

Ashford defines sprue as a chronic wasting disease generally native to tropical countries, characterized by excoriation and sore tongue, excessive intestinal fermentation and light colored fluffy stools, usually based on exhaustion processes, especially of the digestive glandular apparatus, due to nutritional imbalance, low in the complete protein molecule, high in carbohydrates and fats, and accompanied by colonization in the intestinal tract of monilia psylosis (Ashford 1914). Ashford further states that the greatest underlying factor in most cases of sprue is insufficiency in vital food elements, especially protein.

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DISCUSSION

Dr. M. D. Hargrove (Shreveport): Dr. Kerlin has discussed a very important and interesting subject. We have realized lately that there are certain types of deficiency disease due to a deficiency of vitamins or groups of vitamins. I would like to emphasize one point Dr. Kerlin made at the beginning of his paper, that is, that the use of vitamins is probably being grossly abused. More people are being given vitamins A, B, and D, who have absolutely no need for vitamins in that form. The majority of people who are normal otherwise get sufficient supply of these vitamins in their ordinary diet.

Another point is that a great many of these deficiency diseases are due not to deficiency in intake, but a deficiency in ability to utilize the food that is eaten. We see that so often in the Shreveport Charity Hospital, where they come in diagnosed as pellagra, are treated for pellagra, and at autopsy you will see a lesion in the intestinal tract that has prevented utilization of whatever food that patient took.

Dr. N. P. Liles (Bastrop): This paper is of peculiar interest to me as I am very much interested in nutritional deficiency diseases in school children. I have examined in the last seven years around 28,000 white and colored school children. Malnutrition due to various causes was an outstanding defect. Nutritional deficiency dieases according to my observation and records reached its climax during the years 1930-32. A "nutritional" thermometer showed 20 per cent of white children free from any nutritional diseases, negroes 16 per cent. These were improved in 1933-34, the thermometer rose from 20 to 60 per cent of the children showing no nutritional deficiency diseases. With improvement of economic conditions I predict by the end of the present school session records will reveal that 80 per cent of our children will be well nourished. It is appalling the number of children failing to make their grades and many of these failures are due to nutritional disturbances. I am making an effort to teach that we should not depend too much on highly flavored commercial food products, but should get back to the old fashioned way of eating such good foods as our appetite calls for; wholesome, grown at home and prepared in the kitchen, rough foods that children and adults must chew, not drink; a bowl of good "pot-liquor" and corn bread is perhaps more nutritious than a bowl of similar size of some highly advertised food. I am convinced that we are not giving enough time in teaching children and adults the sound fundamental and practical things about nutrition. I believe the private physician should take more time in advising his patients on the fundamentals of nutrition.

Dr. Edgar Hull (New Orleans): There is one statement Dr. Kerlin made upon which I will take issue very mildly and that is, if patients can get proper food, they will take it. This is perhaps true of children; they will usually pick out foods that they need if they are given free choice. With adults, the question of habit, likes and dislikes come in a great deal; people eat different foods that they have been taught to eat, and follow certain dietary customs and habits. For instance, I saw a patient a few days ago who definitely had a dietary deficiency, a colored woman, who lives on a farm, where she can get abundant milk, eggs, and fresh vegetables, but who lives mostly on white bread, beans, and salt meat.

Some seven or eight years ago, when Dr. Scott and Dr. Herrmann investigated an outbreak of beriberi in south Louisiana they found that the natives of this part of the state lived mostly on polished rice. They raised rice but did not eat their own rice; they sold it and bought polished mill rice.

I think, therefore, that it is important to investigate the dietary history regarding possible dietary deficiencies, even in patients who can afford the best of foods.

Dr. W. S. Kerlin (In conclusion): I would like to say that we should look for the initial symptoms of deficiency disease rather than wait until they are advanced. In endocrine disturbances we have learned to recognize fairly accurately the symptoms of dificiency of the different glands, even the minor symptoms are being more frequently recognized. In the future it is to be hoped that we will likewise recognize the early symptoms of nutritional deficiency disease, rather than wait until the symptoms and signs are full blown, when most anyone could recognize them.

# THE MANAGEMENT OF ABORTION WITH SPECIAL REFERENCE TO THE INCOMPLETE VARIETY*

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The frequency of the occurrence of abortion has been very difficult to estimate with any degree of accuracy, chiefly due, of course, to the fact that such cases are not reported. Taussig,[1] in his recent very exhaustive study, states that in urban practice it occurs once to about every two and a half full term deliveries, with a rate, according to Plass, of one to five deliveries in rural districts. Based on these figures, there would be about 681,600 abortions annually in the United States. All types included, Taussig feels that a mortality rate of 1.2 to 2 per cent is the correct estimate, and that 8,000 to 10,000 deaths per year occur in the United States as a result of abortion. Approximately 4,000 are yearly recorded as due to abortion; the others are filed under various diagnoses. There is no question that the practice of criminal abortion has increased considerably in all civilized countries in recent years.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

### ETIOLOGY

In many cases of spontaneous abortion, it is impossible to ascertain the cause of this occurrence. Careful examination of the specimen will often show that there has been defective development, with absorption or death of the embryo, so that the abortion is inevitable from the beginning. The cause of this can only be surmised, but it may be explained in some cases as being due to defective ova or spermatozoa, to faulty development of the trophoblast in the pre-placental stage, to endometrial disease, to endocrine disorders (especially hypo or hyperthyroidism), to corpus luteum insufficiency, to dietary errors (calcium deficiency, lowered sugar tolerance, insufficient amount of vitamin E); in many cases, of course, the cause cannot be determined. Local or general maternal infections, acute or chronic, have been incriminated as causes of abortion, as well as pathologic conditions in the pelvis, such as old lacerations, uterine malpositions, uterine or ovarian tumors, infantile uterus, various forms of double uterus, or adhesions. The influence of accident or injury as a cause of abortion has probably been over estimated, but in some instances there appears to be sufficient evidence to support this idea. Such cases may have a medico-legal aspect. Sexual intercourse is considered by many to be a frequent cause of abortion, especially if the uterus is retroverted. Severe psychic shock is considered a factor of importance by many writers.

### PROPHYLAXIS

It is apparent from the above that, in the case of a woman giving a history of one or more abortions, careful study of both husband and wife may disclose a clue to guide us in treatment, before or early in pregnancy, designed to prevent a repetition. Personally, we have frequently found a low basal metabolic rate in the mother, and have given such patients thyroid extract before and during the pregnancy, with most satisfactory results. We are inclined to agree with Litzenberg, Carl Davis and others, who feel that the basal metabolic rate determination should be a routine in early pregnancy. Falls and his co-workers report success in treating habitual abortion with progestin. If any of the various abnomalities mentioned above are found, they should be corrected, preferably before another pregnancy occurs, or early in pregnancy, if possible. In one of our patients, the third pregnancy was carried to a successful termination by practically continuous rest in bed, after two abortions at the fifth month. According to Taussig the diet of these patients should include plenty of calcium, as well as vitamin B (10 drops of Viosterol 2 or 3 times daily), and vitamin E (such as wheat germ oil).

We usually subdivide the topic of abortion proper into: (a) threatened; (b) inevitable; (c) incomplete; (d) septic, and (e) missed abortion. These terms define themselves, except the last, which will be explained later. Let us consider then seriatim.

Threatened abortion is characterized by: (1) a bloody vaginal discharge, varying from slight spotting to a fairly free flow of bright red blood, with clots; (2) at times a preliminary mucous vaginal discharge; (3) pain, which may be a low backache or a cramping, colicky pain in the lower abdomen. In our practice, we usually find that the bleeding, without pain, is the first noticeable manifestation, so that we warn all patients to notify us at once of the slightest show of blood. Some patients claim that they menstruate once or twice after becoming pregnant, but we doubt the accuracy of the statement. The more advanced the pregnancy the greater is the amount of bleeding, and the more severe is the pain. Examination will disclose the usual findings of pregnancy, plus a somewhat firmer consistency of the uterus; the cervix is usually closed with no obliteration; there is a moderate amount of bleeding, with some clots in the vagina. We do not subscribe to the warning of some writers that such a patient should not be examined vaginally, for fear of converting a threatened into an inevitable abortion. Carefully and gently done, there should be no danger, and one will occasionally find, in a patient with slight bleeding and little or no pain, that the abortion is already partially or totally completed, with either the fetus or the whole product of conception lying in the vagina. It is well to request the patient or family, when first notified, to save all material passed, as well as soiled pads and bed linen, for inspection; otherwise a small fetus or an early intact ovum may be thrown away and thus the correct diagnosis be missed. In connection with this question of diagnosis, let us bear in mind that it is often very difficult to differentiate between threatened or incomplete abortion, on the one hand, and ectopic pregnancy on the other. If we remember that, in the latter condition, the pain practically always precedes the bleeding, and is much more severe, so that the patient often feels weak or actually faints, our errors should be few and far between.

Granted that a correct diagnosis of threatened abortion is made, the first and most important step in the treatment is absolute rest in bed. This is to be strongly emphasized. Next is the hypodermatic administration of one-quarter grain morphine sulphate repeated in one-half to two hours, if necessary. Next comes the regular administration, every three or four hours, of some opium preparation, generally by mouth. Paregoric and codeine are too mild to be of any value. Tincture of opium or opium pills may be used. Dilaudid, one thirty-second of a grain, or pantopon, one-third grain, are preferable. The disadvantage is that opium in any form frequently causes nausea and vomiting, or aggravates the already existing nausea. In such a case, opium by suppository may be tried, or a barbiturate, such as luminal, but the efficacy of such a drug is slight. Constipation is relieved by mineral oil plus an occasional enema, strong laxatives and purgatives being avoided. Progestin (in the form of proluton), one quarter to one rabbit unit (ampoule) every one to two days for two or three days as advocated by Falls, has been of value in some of our recent cases. A light diet is allowed. The patient must stay in bed for five to seven days after all bleeding has ceased; the opiate is stopped two or three days before she is allowed up, provided the symptoms have disappeared.

### INEVITABLE ABORTION

According to Williams, an abortion is to be considered as inevitable only if the membranes have ruptured. Naturally, it is often impossible to settle this point in early pregnancy. Taussig stated that the abortion is inevitable if: (a) there is considerable blood loss or a bloody discharge for several weeks; (b) the pains are regular, severe, and cramping; (c) in a primipara, the cervix is dilated to admit one finger (this does not hold in the case of a multipara); (d) the membranes are ruptured; (e) the fact of the fetal death has been established. Rock states that the soiling of five napkins in one day with bright red blood, or of three per day for five days, means that the abortion is inevitable. A brownish, grumous discharge usually has the same significance, as does the persistence of the symptoms for a week or more in spite of treatment.

Once the diagnosis of inevitable abortion has been established, the uterus should be emptied as promptly as possible, as otherwise the bleeding will continue and infectious organisms may ascend from the vagina into the uterus through the open cervix. This does not mean that forcible dilatation and vigorous operative measures are necessary. (1) Some cases may be completed by the administration of quinine, five grains every four hours, combined with pituitary extract hypodermatically, or with one of the newer ergot preparations (ergotrate or ergoklonkin by mouth or by the hypodermic route. (2) If there is free bleeding and the cervix is closed, a tight cervico-vaginal pack is advisable, plus medication as above. (3) If the cervix is open, the ovum can be extrated with sponge or ovum forceps, or with the finger. (4) In the first two months, graduated metal dilators may be used gently, and then empty the uterus with a dull curette or with the sponge forceps. It should always be remembered that there is danger of perforation when using the curette in the aborting uterus. After evacuation, it is not advisable to place a pack in the uterus, unless there is free bleding. This rarely occurs if the uterus is completely emptied.

### INCOMPLETE ABORTION

The diagnosis of this condition is often extremely difficult hence the importance of inspecting the material passed, the blood clots, pads, and bed linen. Frequently we do not know whether the abortion is threatened or is incomplete; in such a case the patient should be treated for threatened abortion. If there is a continuation of free bleeding, if there is an offensive odor to the discharge, if the cervix remains open, and if the uterus remains enlarged, the presumption of incomplete abortion is strengthened. However, in the first two months the cervix may remain closed and the uterus may be of a rather firm consistency. Once the diagnosis is clear, the retained fragments should be removed, provided the patient is not infected. This removal is best accomplished under some form of anesthesia by the use of the finger or the sponge or ovum forceps; the curette is to be used only if the cervix is so tightly closed as not to admit the finger or the sponge forceps, and should be employed very gently. A pack may bring about the expulsion of a completely retained placenta at the third, fourth, or fifth months, but will not be of much avail in the first few weeks, or in case only a few fragments remain. The same is true of pituitary extract or ergot preparations. A pack is placed in the uterus after evacuation only if free bleeding persists.

### SEPTIC ABORTION

An abortion patient, with retention of part or all of the products of conception, and with temperature of 100° F. or over for more than 24 hours, is considered septic. Perhaps the majority of these cases are due to criminal interference, but some are due to invasion of the uterus by bacteria from the vagina, ascending through the partially dilated cervix in slowly progressive inevitable or incomplete abortions. There is much argument as to the proper course to pursue, some favoring active intervention, others preferring the conservative method and refraining from invasion of the uterine cavity as long as fever is present. Time will not permit a detailed review of the pros and cons of the matter. All are agreed that if the infection has extended past the uterus, as shown by parametrial thickening or tenderness, evacuation should not be performed unless our hand is forced by free bleeding. However, if the cervix is open, and the offending material can be removed gently with the sponge or ovum forceps, this should be done. This procedure is safer if there is no extension of the infection. If the cervix is closed, medical treatment (quinine, with pituitary extract or an ergot preparation) may be tried. If this fails, gentle evacuation with the forceps after the temperature is normal for three to five days appears to be safe. The finger or the curette should not be used in such a case, for fear of the danger of spreading the infection. Krieger, Schwartz. and others advocate drainage of the uterus by strips of gauze soaked in alcohol, and state that this frequently brings about spontaneous expulsion. Others use carbon pencils inserted in the uterus, before or after evacuation, claiming that this precedure aids in clearing up the infection. The main idea in the treatment of septic abortion, then, is the avoidance of the spread of the infection to the surrounding tissues or to the blood stream, which is particularly important if the infection is a streptococcal one.

### MISSED ABORTION

This term is usually applied to the retention of the products of conception for two or more months after the death of the fetus. It is a fairly common occurrence, much more so than is commonly realized. There may be a history suggestive of a threatened abortion. The uterus fails to increase in size, fetal movements are not felt at the time that they are normally expected, and there may be an occasional brownish discharge. As a rule, there are no general symptoms of malaise, bad taste in the mouth or mild fever, which are usually considered to be noted when there is a dead fetus in the uterus. The Aschheim-Zondek and Friedman tests are negative. It usually requires two or three weeks of observation to establish the diagnosis. Once we are sure, the treatment is to empty the uterus, either in one sitting or by the use of the catheter and pack. Prolonged waiting will often be rewarded by spontaneous expulsion, but this is not by any means constant, hence evacuation is better. The patients are especially prone to free bleeding when the uterus is emptied.

### SUMMARY

To summarize, we may say that many abortions may be prevented by correction of paternal or maternal abnormalities before the inception of pregnancy, and that many others can be prevented by prompt and careful treatment of threatened abortion. Extreme care as regards asepsis, together with gentleness of manipulations, will lower the maternal mortality rates when treating cases of incomplete or inevitable abortion. In the treatment of septic abortion, judgment as to the proper time for interference and careful choice of the best method to pursue are the most important factors.

### DISCUSSION

Dr. T. B. Sellers (New Orleans): Dr. King is one of the few men in the state who can speak authoritatively on this important subject. For many years he has been in charge of a large service set aside for the management of these cases at the Charity Hospital.

I agree heartily with everything Dr. King has said and wish only to elaborate a few points. Repeated spontaneous abortions require a great deal of study. The patient should have not only a local but a general examination. Certain cases of repeated abortions with basal metabolic readings within normal limits have been carried to term by the administration of thyroid. Others with negative Wassermanns have been carried to term by the use of iodids and mercury. In cases of habitual abortion, the use of large doses of corlutin as suggested by Krohn and Falls, or progestin, is valuable. Since their report, I have had five cases of habitual abortion successfully carried to term by the use of corlutin. I have also used vitamin E or wheat germ oil in a number of cases with good results.

As to the wisdom of making a gynecologic examination in threatened abortion, I concur in Dr. King's opinion that such examination can be done safely if the examiner realizes that gentleness is essential and that the same aseptic precautions should be followed in preparation of the patient and surgeon as for an abdominal operation.

Concerning the time element in threatened abortion, the social status of the patient as well as the severity of the symptoms is a factor which necessarily influences the method of handling this group of cases.

In emptying the uterus in cases of missed abortion a word of warning against attending rapid instrumental dilatation of the cervix is important. It is better to pack the cervix and vagina and use oxytoxic agents, permitting the cervix to soften prior to dilatation; otherwise much damage can be done an unyielding cervix. Should this fail, vaginal hysterotomy is the next procedure of choice.

Non-febrile cases of incomplete abortion which are potentially infected should be observed for four or five days prior to removing any retained secundines. This is very important. If there is excessive bleeding, it is best to remove aseptically any material in the cervical canal and pack the cervix and vagina firmly, thus avoiding intrauterine instrumentation.

In septic abortion, the majority of obstetricians and gynecologists agree that non-operative treatment is the procedure of choice. Notwithstanding this fact, it is difficult at times to follow this course. The patient's family usually feels that the thing of paramount importance is to get rid of the retained products of conception and often they demand immediate action. Unfortunately, this opinion is shared by many doctors, who refer patients insisting that something be done at once to empty the uterus. In an occasional case, the results of emptying the uterus are spectacular, the temperature dropping, perhaps, from 105 to normal within six to eight hours. This is the exception rather than the rule; it is more likely that if we go in too early against our better judgment, the next day we find that instrumentation has opened up the lymphatics, caused a rise in temperature, and, perhaps, in forty-eight hours the patient dies. More of these patients have lost their lives as a result of surgery than have been benefitted by it.

Briefly, the conservative or non-operative treatment of such patients is as follows: elevation of the head of the bed, maintenance of fluid and mineral balance; supportive measures such as a high caloric diet; if food is not retained, a minimum of 3000 c.c. of five per cent glucose daily; repeated small transfusions of 250 to 350 c.c. of blood once or twice a day (of course, the first transfusion may be larger if the patient is not too toxic); heat to the abdomen by means of stupes or the heat tent continuously, and heat to the vaginal vault by means of the Elliott Treatment Regulator. I believe that vaccine therapy has a very limited place in the treatment of these cases.

Dr. King has mentioned the importance of repeated general examinations in the search for complicating factors. It is important that we remember the possibility of abscess in the cul-de-sac as well as cardiac and pulmonary complications.

Dr. Walter E. Levy (New Orleans): It is not the old corpus luteum extract that is being used for these repeated abortions, but this new concentrate, progestin, in the form of proluton. I think I had the first case in the city that carried on, after habitual abortion, with this corpus luteum extract, progestin. I did a diagnostic curettage and found excess of the follicular hormone.

I now have four patients, one delivered, one nearly to term, and two others whom I did not put to bed at all on progestin, letting them lead a normal existence. As a matter of fact, one woman was carried along for seven months but started with some uterine cramps the other day, and on two doses of progestin was in perfect ease and returned to her duties.

In women whom I treat for sterility and find their basal metabolism low, by all means should be carried along with estimated doses of thyroid.

Vaginal examination, I think, should be made in every case because, as Dr. Graffagnino showed in a large series, a great number admitted with the diagnosis of incomplete abortion were found to be ectopic pregnancies. The time to treat an ectopic is now, and not when it ruptures. About the Wassermann reaction in syphilis, I have found that syphilis is not a cause for early loss of pregnancy, or abortions. It will cause the death of a fetus around six, seven or eight months, but not very early.

Dr. E. L. King (New Orleans): I have nothing very much to say, except to concur in what has been said. I did not mention syphilis specifically because it is not considered a cause of early abortion, but that does not mean you should not treat syphilis. If possible, every pregnant woman should have a Wassermann done, certainly in the charity services. Every pregnant woman having syphilis should be treated.

I also want to emphasize what the doctor said about the surgical aseptic technic of examining a patient with threatened abortion, just as though the woman were going to deliver. I know that a good many of them have been infected by careless examination because it seemed to be only a small affair, pregnant one month instead of nine months.

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# MATERNAL MORTALITY IN LOUISIANA*

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As the facts of maternal mortality become more widely known, the physician's responsibility for leadership in improving the status of maternal care becomes more and more impressive. We cannot forget that puerperal death statistics are a matter of public record and that our sophisticated laity is becoming more and more sensitive to just such social ills as we have under consideration.

Even the most casual observation reveals the patent truth that waste of maternal life on the sacrifical altar of the species is due in large part to controllable causes. A wealth of obstetrical knowledge has been inherited from our progenitors which if properly disseminated and applied would result in universal and skillful obstetrical practice with a consequent reduction in the price of maternity. Thousands of infant and maternal lives could be saved, and loss of human happiness could be prevented beyond the estimation of material value. To accomplish an improvement in maternal mortality it is advisable first to become familiar with the results obtained under our present system of obstetrical practice.

This presentation is an attempt to give at least a kaliedoscopic view of the results of obstetrical practice in Louisiana obtained under the contemporary system. The available data are taken principally from the Louisiana State Bureau of Vital Statistics, United States Bureau of Census, and the Children's Bureau. The information, though taken from official sources, is not without many inaccuracies. Though the data are not accurate enough to compare with other maternal mortality studies, it is hoped that it will sensitize the profession to the importance of its obligations to the quesion and that the necessiy of the cooperation of all physicians in a more accurate and detailed

Table 1

| Causes of Death | 1932 | | | | 1933 | | | |
|---|---|---|---|---|---|---|---|---|
| | White | | Col. | | White | | Col. | |
| | No. | % | No. | % | No. | % | No. | % |
| Diseases of Pregnancy | 170 | 15.1 | 161 | 8.7 | 155 | 14.4 | 158 | 9.1 |
| Tuberculosis | 139 | 12.4 | 214 | 11.5 | 125 | 11.6 | 338 | 10.9 |
| Organic Diseases of the Heart | 53 | 4.7 | 152 | 8.2 | 64 | 5.0 | 162 | 9.3 |
| Pneumonias | 72 | 6.4 | 109 | 5.3 | 48 | 4.4 | 70 | 4.0 |
| Nephritis | 66 | 5.0 | 108 | 5.3 | 57 | 5.3 | 124 | 7.2 |
| All Other Causes | 1118 | | 1847 | | 1075 | | 1734 | |

Comparison of puerperal diseases and other most common causes of death in white and colored women between ages of 15 and 45 years in Louisiana without regard to marital status.

(From Louisiana State Bureau of Vital Statistics) study of our obstetrical "back yard" will be appreciated.

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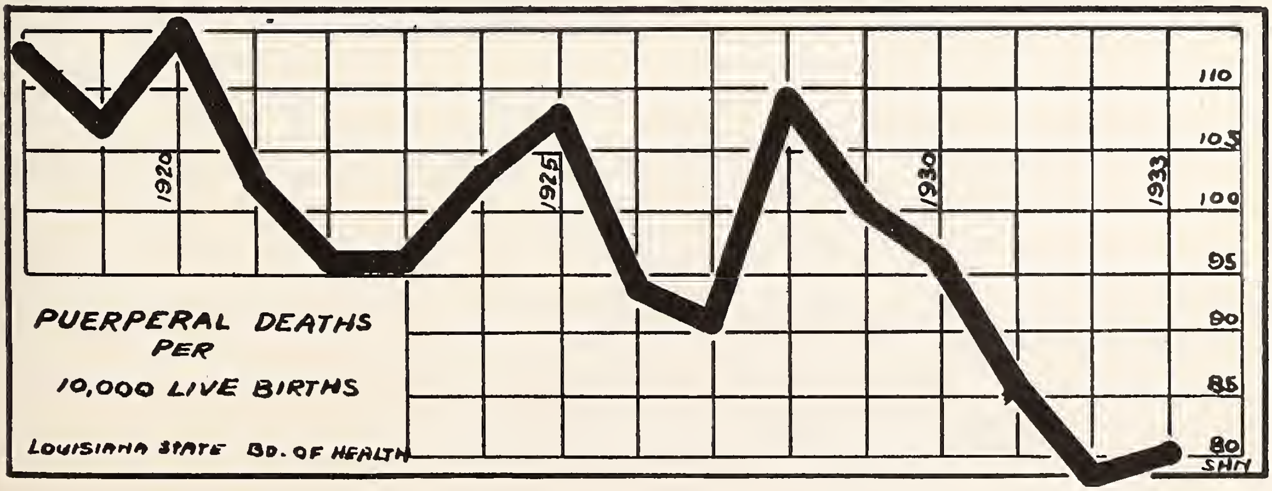
*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

The source of data in the charts showing the puerperal mortality trend in Louisiana, the relative trend in other areas of the United States Birth Registration Area, and the relative importance of puerperal diseases with other common causes of death in Louisiana women are given with respective charts or tables. Three hundred and forty-three death certificates which represent all the puerperal deaths in Louisiana in 1934 were examined for the purpose of gaining an idea of the cause and per cent distribution of various puerperal diseases as a cause of death in several groups of women.

The International List of the Cause of Death was used to classify the diagnoses. The titles included in the list of diagnoses are defined as follows: Abortion with septic conditions includes miscarriage, premature labor, or missed abortion. It implies the termination of pregnancy before the twenty-eighth week uterogestation. Abortion without septic conditions refers usually to hemorrhagic shock following abortion. Ectopic gestation is self explanatory. Puerperal hemorrhage includes placenta previa, postpartum hemorrhage, premature separation of the placenta, and molar pregnancy. Puerperal septicemia implies postnatal sepsis after the twenty-eighth week of uterogestation, puerperal peritonitis, phlegmasia alba dolens and pyelitis of pregnancy. Puerperal albuminuria and eclampsia indicates preeclampsia, chronic nephritis with pregnancy, eclampsia and uremia with pregnancy. Other toxemias of pregnancy include pernicious nausea and vomiting. Under embolus and sudden death, are placed deaths occuring suddenly without a satisfactory explanation of the cause. Other accidents of labor include death following or during cesarean section not due to infection; deaths during or following instrumental or breech deliveries; rupture of the uterus; abnormal or difficult labor; faulty presentations; inversion of the uterus; tears of the cervix or perineum; postpartum shock due to hemorrhage; and similar terms. The term "other and unspecified conditions of the puerperal state," includes deaths occurring during pregnancy, or the puerperium resulting from diseases independent of the pregnancy.

When more than one puerperal condition appears as the cause of death, the death was assigned to one of them in accordance with the rules in the Manual of Joint Causes of Death.[2] For example, if cesarean section and eclampsia appeared, the death was assigned to puerperal albuminuria and eclampsia. If cesarean section, eclampsia, and peritonitis appeared, the death was assigned to puerperal septicemia. Pneumonia, causing death before the onset of labor, was classified under unspecified conditions of the puerperal state. In some cases the cause of death stated on the death certificate did not seem correct to the author. In all cases, however, feeling that the attending physician would be qualified to state the cause of death, except when it was necessitated by the Manual of Joint Causes of Death, the diagnoses were not changed.

When the three-hundred and forty-three



death certificates were corrected by reference to the Manual of Joint Causes of Death, six were excluded as non-puerperal. One (colored) was assigned to diphtheria, (No. 10 International List). The remaining five excluded cases (all white), were assigned to the following causes: Two cases of pernicious anemia (No. 71 International List): malaria (No. 38 International List) one case, and myocarditis (No. 93a International List) two cases.

### TREND OF MATERNAL MORTALITY IN LOUISIANA

The year to year puerperal death rate* is shown in the Chart. The trend is seen to be slightly down, and is well sustained in recent years. In some years, however, it is seen to be astoundingly high. In no year does it approach the relatively lower rate of 68 per 10,000 live births of the United States Birth Registration Area during the same period.

Table 2

| | 1927 | 1928 | 1929 | 1930 | 1931 | 1932 | 1933 | Av. |
|---|---|---|---|---|---|---|---|---|
| Southern | | | | | | | | |
| Louisiana | 91 | 114 | 99 | 100 | 86 | 81 | 84 | 93 |
| Alabama | 80 | 94 | 99 | 90 | 81 | 76 | 75 | 85 |
| Arkansas | 90 | 88 | 91 | 94 | 71 | 66 | 78 | 82 |
| Florida | 110 | 101 | 95 | 102 | 104 | 101 | 115 | 104 |
| Mississippi | 87 | 94 | 89 | 96 | 80 | 63 | 73 | 83 |
| Mountain | | | | | | | | |
| Colorado | ---- | 96 | 86 | 74 | 70 | 74 | 62 | 66 |
| New Mexico | 63 | 59 | 55 | 56 | 57 | 57 | 54 | 57 |
| Wyoming | 87 | 65 | 63 | 92 | 84 | 66 | 57 | 73 |
| Arizona | 89 | 77 | 78 | 65 | 82 | 81 | 65 | 76 |
| West Sea Board | | | | | | | | |
| California | 58 | 61 | 57 | 51 | 62 | 56 | 46 | 55 |
| Nevada | ---- | ---- | 63 | 105 | 98 | 63 | 82 | 84 |
| Oregon | 64 | 61 | 59 | 58 | 45 | 47 | 55 | 55 |
| Washington | 66 | 72 | 62 | 62 | 64 | 60 | 64 | 64 |
| East Sea Board | | | | | | | | |
| Pennsylvania | 64 | 61 | 65 | 60 | 65 | 61 | 58 | 62 |
| Rhode Island | 64 | 60 | 79 | 57 | 55 | 60 | 57 | 61 |
| New York | 61 | 59 | 56 | 56 | 59 | 59 | 62 | 58 |
| New Jersey | 63 | 59 | 55 | 56 | 57 | 57 | 54 | 56 |
| Middle States | | | | | | | | |
| Missouri | 67 | 70 | 73 | 61 | 73 | 67 | 58 | 67 |
| Kansas | 63 | 77 | 68 | 73 | 62 | 62 | 55 | 65 |
| Iowa | 59 | 48 | 56 | 59 | 50 | 54 | 53 | 54 |
| Illinois | 56 | 57 | 68 | 55 | 55 | 56 | 50 | 56 |
| AREA | 65 | 69 | 70 | 67 | 66 | 63 | 62 | 66 |

Trend of maternal mortality per 10,000 live births in Louisiana as compared to certain other states in the U. S. Birth Registration Area 1927-1934. All states picked at random except Louisiana and Florida.

### RELATIVE IMPORTANCE OF PUERPERAL DISEASES AS A CAUSE OF DEATH IN LOUISIANA WOMEN IN THE CHILD BEARING AGE

As noted in Table 1, puerperal diseases caused death in white women in the age group of 15 to 45 years more frequently than any other five most common causes of death accounting for 15.1 per cent of deaths in 1932, and 14.4 per cent in 1933. In the colored women of the same age group, puerperal diseases were second only to tuberculosis and perhaps heart disease as causes of death. It may be that the colored women are not more immune to puerperal diseases than white women, but simply more liable to the other devastating diseases, particularly tuberculosis.

Table 3

| | 1927 | 1928 | 1929 | 1930 | 1931 | 1932 | 1933 | Average |
|---|---|---|---|---|---|---|---|---|
| Area | 65 | 69 | 70 | 67 | 66 | 63 | 62 | 79 |
| White | 59 | 63 | 63 | 62 | 60 | 58 | 56 | 60 |
| Col. | 113 | 121 | 120 | 117 | 108 | 98 | 97 | 110 |
| Louisiana | 91 | 114 | 99 | 100 | 86 | 81 | 84 | 93 |
| White | 70 | 90 | 80 | 84 | 73 | 70 | 74 | 78 |
| Col. | 126 | 154 | 130 | 125 | 106 | 96 | 98 | 119 |

Trend of maternal mortality per 10,000 live births by color in U. S. Birth Registration Area having 1,500 or more colored births and in Louisiana in 1927-1934.
(U. S. Department of Labor, Children's Bureau.)

### PUERPERAL DEATH RATES IN LOUISIANA AND OTHER STATES IN SEVERAL GEOGRAPHIC AREAS

A comparative study of puerperal death rates in Louisiana and sample states of several geographic areas of the United States birth registration areas including seven years study is shown in Table 2. Twenty-two states taken as samples are included in the table. The group of states showed a puerperal death rate of 66 per 10,000 live births, while Louisiana had a rate of 93 deaths per 10,000 live births, maintaining at the same time a much higher death rate than any of the states with the sole exception of Florida which presented a rate of 104 per 10,000 live births in the same period.

### RELATIVE SIGNIFICANCE OF COLORED PUERPERAL DEATHS IN LOUISIANA AND OTHER STATES

In an attempt to defend our unusually high maternal death rate we naturally expect, and probably hope, to lay the blame on our large uneducated negro population. However, in referring again to Table 2 it is at once seen that neighboring states with a similar population, Florida excepted, maintain a much lower death rate than does Louisiana. Futhermore, as is shown in Table 3 a death rate of 93 is maintained, while those states in birth registration areas reporting a large number of colored births maintain a rate of 79. At the same time Louisiana shows a rate of 78 white deaths, while the states of similar population had a death rate of 60 for white women. The average colored puerperal death rate was 119 for Louisiana and 110 for the area, a gross mortality excess of 14. At the same time we had 18 and 19 more deaths per 10,000 live births among white and colored women respectively than the area at large reporting 1,500 or more colored births per annum. It is therefore apparent that the increased maternal death rate is due to a higher death rate among both white and colored women.

### CAUSE AND PER CENT DISTRIBUTION OF PUERPERAL DISEASES OCCURRING IN LOUISIANA IN 1934

Having briefly reveiewed the relative surface mortality in Louisiana consider now the cause of the puerperal deaths and relative significance of the various titles in several groups that can be isolated by referring to the standard Louisiana death certificates. During the period studied (1934), 42,794 births were reported.[4] Of these 25,012 or 58.4 per cent were attended by physicians, and 17,728 or 41.4 per cent were attended by midwives. Only 54 or 0.2 per cent were attended by unlicensed individuals. It seems to be the custom of rural physicians to sign birth certificates for unlicensed midwives or "grannies". There were 2,109 stillbirths leaving 40,685 live births and giving a stillbirth rate of 4.8 per cent. The maternal death rate was 79 per 10,000 live births during the period studied.

Table 4

| Cause of Death | Total | % | White | % | Colored | % |
|---|---|---|---|---|---|---|
| All Causes | 337 | ---- | 150 | ---- | 187 | ---- |
| Abortion with Sepsis | 33 | 9.8 | 17 | 11.6 | 16 | 8.5 |
| Abortion without Sepsis | 4 | 1.1 | 0 | ---- | 4 | 2.1 |
| Ectopic Gestation | 14 | 4.15 | 10 | 6.6 | 4 | 2.1 |
| Puerperal Hemorrhage | 34 | 9.2 | 21 | 13. | 13 | 6.9 |
| Puerperal Sepsis | 97 | 28.7 | 36 | 24. | 61 | 32.6 |
| Puerperal Albuminuria and Eclampsia | 95 | 28.1 | 43 | 28.6 | 52 | 27.8 |
| Other Toxemias | 15 | 4.4 | 4 | 2.6 | 11 | 5.8 |
| Embolus and Sudden Death other Accidents | 35 | 10.3 | 17 | 5. | 18 | 5.3 |
| Other and Unspecified Conditions | 3 | .9 | 1 | .6 | 2 | 1.6 |

Cause and percent distribution of deaths in white and colored women dying from puerperal causes; Louisiana 1934.

Study of Table 4 reveals that of the 337 deaths classified as puerperal by the method above described, 150 were white women and 187 were colored women. Of the 40,685 live births, 23,910 were white and 16,875 were colored. Thus, while 41.2 per cent of the live births were white, the white population made up 44.5 per cent of the deaths; and 58.8 per cent of the births were colored and negroes made up 55.5 per cent of the deaths. Therefore, relatively, the death rate was slightly higher among white women than colored women.

In the total series septicemia and albuminuria and eclampsia caused 97 and 95, or 28.78 and 28.18 per cent of the deaths respectively, each playing approximately an equally important role. If the septic abortions are combined with the 97 cases of sepsis occurring after the twenty-eighth week of gestation, then sepsis leads the list and is responsible for 38.8 per cent of all the deaths. Hemorrhage was responsible for 9.18 per cent of the deaths. Vomiting of pregnancy and ectopic gestation played about equal roles.

Abortion with sepsis, ectopic gestation, and hemorrhages were appreciably more frequent causes of death among white women. Albuminuria and eclampsia were about equally important in the two races. The deaths from sepsis and vomiting of pregnancy, particularly the former, were more common among the colored women. While no white woman died from abortion with hemorrhage, 2.1 per cent of the colored groups died from this cause.

### MARITAL STATUS

Table 5 shows the per cent distribution of deaths among married and unmarried women. Only 35 were unmarried, and only one of these was white. Illegitimate pregnancy seemed to lead to a higher incidence of death from the two causes most readily amenable to prenatal care, e. g., albuminuria and eclampsia, and vomiting of pregnancy. The death rate was 96.6 per 10,000 total births in the normal unmarried. The series of unmarried women is, however, rather small for reliable deduction.

Table 5

| Cause of Death | Married | | Unmarried | |
|---|---|---|---|---|
| | No. | % | No. | % |
| Abortion with Sepsis | 30 | 9.0 | 3 | 8.5 |
| Abortion without Sepsis | 3 | .9 | 1 | 2.7 |
| Ectopic Gestation | 13 | 4.3 | 1 | 2.7 |
| Puerperal Hemorrhage | 34 | 11.2 | 0 | |
| Puerperal Sepsis | 87 | 28.8 | 10 | 27.1 |
| Puerperal Albuminuria and Eclampsia | 82 | 27.1 | 13 | 37.1 |
| Other Toxemias | 12 | 3.9 | 3 | 8.5 |
| Embolus and Sudden Death | 7 | 2.3 | 0 | ---- |
| Other Accidents | 32 | 10.5 | 3 | 8.5 |
| Other and Unspecified Conditions | 2 | .6 | 1 | 2.7 |
| Total | 302 | | 35 | |

### URBAN AND RURAL DEATHS

Table 6 reveals the relative importance of the several causes of death in urban and rural women. One hundred and thirty seven of the deaths occurred among women residing in urban communities while 200 of the 337 deaths were rural women. Of the latter, 64 died in urban hospitals. Therefore, if the place of death instead of the place of residence was considered, the data would be practically reversed.

Table 6

| Cause of Death | Urban | | | | | | Rural | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | White | | Col. | | Total | | White | | Col. | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Abortion with Sepsis | 21 | 15.3 | 12 | 19.6 | 9 | 11.6 | 13 | 6.5 | 4 | 4.2 | 9 | 8.3 |
| Abortion without Sepsis | 3 | 2.1 | 0 | | 3 | 3.8 | 1 | .5 | 0 | | 1 | .9 |
| Ectopic Gestation | 7 | 5.1 | 5 | 8.1 | 2 | 2.5 | 7 | 3.5 | 5 | 5.7 | 2 | 1.9 |
| Puerperal Hemorrhage | 7 | 5.1 | 2 | 3.2 | 5 | 6.4 | 27 | 13.5 | 19 | 20.0 | 8 | 7.6 |
| Puerperal Sepsis | 37 | 27.0 | 10 | 16.3 | 27 | 35.0 | 60 | 30.0 | 30 | 34.5 | 39 | 28.8 |
| Puerperal Albuminuria and Eclampsia | 36 | 26.1 | 21 | 33.6 | 15 | 19.4 | 59 | 24.5 | 22 | 22.1 | 37 | 35.0 |
| Other Toxemias | 5 | 3.6 | 0 | | 5 | 6.4 | 10 | 5.0 | 4 | 4.2 | 6 | 5.7 |
| Embolus and Sudden Death | 4 | 2.6 | 2 | 3.2 | 2 | 2.5 | 3 | 1.5 | 2 | 2.1 | 1 | .9 |
| Other Accidents | 17 | 12.4 | 9 | 14.7 | 8 | 10.3 | 18 | 9.0 | 8 | 8.4 | 10 | 9.6 |
| Other and Unspecified Conditions | 1 | .7 | 0 | | 1 | 1.2 | 2 | .5 | 1 | 1.0 | 1 | .9 |
| Total | 137 | | 61 | | 77 | | 200 | | 95 | | 105 | |

Cause and percent distribution of urban and rural puerperal deaths of white and colored women; Louisiana 1934.

Urban and rural refers to place of residence and not death. Towns of 10,000 or more counted as urban.

Abortions, ectopic gestation, eclampsia, embolism and sudden death, and accidents of labor were more important factors in urban than rural women. Abortions, and accidents of labor were the only appreciably more important factors in urban groups, however. The greater incidence of hemorrhagic deaths in rural women is noteworthy.

The urban white groups showed a higher incidence of death from abortions, ectopic pregnancy, puerperal albuminuria, embolism, and accidents of labor than the rural white group. The striking thing in the white group was the much greater incidence of abortion, toxemic and accidental deaths in the urban group, and the greater liability of the rural group to succumb to hemorrhage and sepsis.

The only striking difference in the colored group is the higher incidence of septic abortion and puerperal septicemia death in the urban group, and the greater toxemic death rate in the rural group. White women played the leading role in abortion, ectopic gestation, eclampsia, embolic and accidental deaths in the urban group. In the rural group they had a higher incidence of deaths from "ectopics", sepsis, hemorrhage and embolism than the colored women.

## HOSPITALIZATION

One hundred and sixty-seven of the 337 deaths occurred in homes, and 170 occurred in hospitals. It may be noted that the relative number of white and colored home and hospital deaths were without appreciable significance. Of course, no information was available to determine which patients had planned hospitalization and which ones were hospitalized after acquiring the complication in the home that lead to their hospital deaths. Ninety-three of the 170 hospital deaths occurred in the State Charity Hospitals.

Table 7

| Cause of Death | Home | | | | | | Hospital | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | White | | Col. | | Total | | White | | Col. | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Abortion with Sepsis | 13 | 7.0 | 3 | .4 | 10 | 10.7 | 21 | 12.3 | 15 | 18.3 | 6 | 6.8 |
| Abortion without Sepsis | 2 | 1.1 | 0 | ---- | 2 | 2.1 | 2 | 1.1 | 0 | ---- | 2 | 2.2 |
| Ectopic Gestation | 4 | 2.4 | 3 | .4 | 1 | 1.0 | 10 | 5.8 | 7 | 8.6 | 3 | 3.4 |
| Puerperal Hemorrhage | 24 | 14.3 | 15 | 20.0 | 9 | 9.6 | 10 | 5.8 | 6 | 7.4 | 4 | 4.5 |
| Puerperal Sepsis | 45 | 26.9 | 24 | 32.0 | 21 | 22.5 | 52 | 30.0 | 14 | 17.2 | 38 | 43.0 |
| Puerperal Albuminuria and Eclampsia | 47 | 28.1 | 18 | 24.0 | 30 | 32.2 | 47 | 27.6 | 25 | 30.8 | 22 | 25.0 |
| Other Toxemias | 88 | 4.7 | 4 | 5.3 | 4 | 4.3 | 7 | 4.1 | 0 | ---- | 7 | 7.9 |
| Embolus and Sudden Death | 3 | 1.7 | 2 | 2.6 | 1 | 1.0 | 4 | 2.3 | 3 | 3.7 | 1 | 1.1 |
| Other Accidents | 19 | 11.3 | 6 | 8.0 | 13 | 13.9 | 16 | 9.4 | 10 | 12.3 | 5 | 5.6 |
| Other and Unspecified Conditions | 2 | 1.1 | 0 | ---- | 2 | 2.1 | 1 | .5 | 1 | 1.2 | 0 | ---- |
| Total | 167 | | 75 | | 93 | | 170 | | 81 | | 88 | |

Cause and percent distribution of home and hospital puerperal deaths of white and colored women in Louisiana; 1934.

Table 7 seems to reveal that the abortion death rate was appreciably higher, 5.8 per cent, in the hospital group. Sepsis caused 3.1 per cent more of the hospital than the home deaths. The difference in home and hospital toxemic deaths was negligible. The incidence of accidental deaths was slightly greater in homes than hospitals.

The racial difference in distribution of causes of death in homes and hospitals was more striking than in the total series. In table 7 it is seen that 18.3 per cent of the white women dying in hospitals succumbed to septic abortions, while 0.4 per cent of the home deaths (white) were from this cause. Puerperal hemorrhage caused 20 per cent of the home deaths (white) and only 7.4 per cent of the hospital deaths (white). The per cent of septic deaths was nearly twice as great in the home cases as the hospital cases (white).

Hospitals had a 6.8 per cent higher distribution of albuminuria and eclampsia deaths in the white group. The vomiting death incidence in white women was confined entirely to the home group, making up 5.3 per cent of all the home white series. The relatively higher incidence of accidental deaths (white) in hospitals is noteworthy.

Among the colored women the relative importance of septic abortions in the homes and hospitals is somewhat reversed from the white groups. Hemorrhage seems to make up a greater per cent of the colored as well as the white home deaths, though the difference is not quite as striking in the negro as in the white groups. That 43 per cent of the colored women in the hospital series died of sepsis while only 22.5 per cent of the colored home group were septic deaths is very, very impressive. The greater per cent distribution of colored deaths from albuminuria and eclampsia and accidents of labor in the home group is apparent. The latter difference, 8.3 per cent, is quite appreciable.

## DISCUSSION

The apparent downward trend of puerperal death rate in Louisiana is somewhat encouraging. Perhaps the laity is becoming more sensitive to the importance of maternal care. Maybe physicians are giving a better quality of maternal care. Markedly improved roads which facilitate availability of physicians are, no doubt, leading to a lower death rate.

Louisiana cannot feel secure in her obstetrical status, however, because she still maintains next to the highest death rate in the United States birth registration area* and an appreciably higher puerperal death rate than other states of similiar population.

That puerperal disease is Louisiana women's most devastating enemy in the child-bearing age is astounding, I am sure not only to the laymen but to practicing physicians and public health officers as well. This fact alone makes it imperative that the medical profession lends its energy in overcoming whatever social and economic ills that exist to maintain this state of affairs.

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* Now includes entire 48 states, Louisiana was added in 1927.

The relative maternal mortality rating gives no ground to defend the situation on the basis of a high negro population. There is both a higher colored and white death rate than in other states. The principal factors causing deaths, namely: sepsis, toxemias, abortions and hemorrhage, are in keeping with the Children's Bureau Survey[5]. However, while the Children's Bureau Survey found the colored death rate to be nearly twice as high as the white death rate[6], Louisiana white women had a slightly higher rate for the 1934 period than did the colored women.

No accurate information was available concerning the distribution of deaths on the various trimesters of pregnancy. The quality and quantity of prenatal care received by the 337 women was likewise indeterminate. On nine, or 2.7 per cent of the certificates such comments as, "viewed body", or, "moribund when seen" was noted. For these deaths, certainly the physician could not be held responsible, for he was not consulted in time. Gross ignorance, carelessness, and economic adversity are responsible factors.

The higher incidence of septic abortions among city dwellers needs closer scrutiny. The ease of securing criminal abortions in cities is probably a factor that needs elimination. Here it may be mentioned that death certificates signed as "criminal abortion" are filed as homicide in the International List. It follows, therefore, that not a few of these deaths are lost for the present study and the abortion situation is probably somewhat worse than is indicated.

Ectopic gestation made up 4 per cent of all maternal deaths. Both the total number and relative distribution in urban and rural areas, in this series, is in keeping with the Children's Bureau finding[7]. It is fair to assume that the relatively high incidence of urban deaths from ectopic pregnancy is due, at least in part, to a tendency of rural physicians to overlook the conditions somewhat more frequently than urban physicians: A physician makes a surgical diagnosis most readily when an operating room is available. The higher incidence of "ectopic" deaths among white women is probably due more to a higher frequency of diagnosis than actual occurrence.

The prevalence of rural deaths from hemorrhage needs attention. Perhaps it would be good for rural physicians to equip themselves better to control hemorrhage and to treat shock. Pituitrin, ergot, sterile packs and infusion fluids, of which gum acacia is particularly efficacious, are not difficult to carry. I have heard rural physicians state that sepsis does not occur in their practice. Death certificates do not verify this statement. Urban women have a greater opportunity to avail themselves of prenatal care than rural women. Yet rural physicians lose fewer patients from eclampsia than urban doctors. Is it possible that urban physicians are giving a poorer quality of prenatal care or are they treating their patients with eclampsia less wisely? It seems possible that rural physicians do not treat their vomiting patients as early or as enthusiastically as urban physicians. It is probable, however, that the rural doctor simply has less facilities for controlling severe vomiting than the urban physician.

A satisfactory analysis of the very miscellaneous group of "other accidents" is very difficult. Both urban white and colored women seem more likely to fall into this group. This cannot be attributed entirely to the radical operative procedures in hospitals, because more home than hospital cases fell into this category, at least they were more frequently assigned to this group. Two cases in this group were placenta previa treated by accouchment force and forceps. Both were handled by the same rural physician. Probably rupture of the uterus kills more women than is suspected.

The distribution of all home and hospital deliveries was not ascertained in this study. Likewise, the number of home cases that were transferred to hospitals after incurring the complications that lead to their death could not be determined. Very frequently women who are delivered in hospitals have been examined vaginally, or have even had attempts at delivery before admission. For these reasons, even if the number of live births occurring in hospitals were obtained, the relative home and hospital mortality rate would not give an index of the relative safety of the two places for delivery. In the Children's Bureau Survey more than half of the deaths reported had been hospitalized at some time during their final illness. However, only a little more than half of these cases were delivered or aborted in hospitals[8]. It is natural to suspect that most of the hospital cases were urban women. Nearly half of the cases in this series died in hospitals. It is probably quite fair to consider a large part of the deaths in hospitals to be transferred cases from homes. The tendency towards a radical treatment in hospitals (curettage) is a possible explanation for the relatively higher abortion death rate.

That ectopic gestation death rates in hospitals, being nearly twice as great as in homes where treatment facilities are infinitely inferior, is paradoxical. Here again transferred cases have to be considered, also the diagnosis, as mentioned before, is less likely to be made on home cases. Freer use of shock measures combined with earlier diagnosis and surgery should lower the death rate from extra-uterine pregnancy.

The septic problem in hospitals seem to be a great one. This is particularly true of the negro. Poor isolation facilities plays an easily controllable role here. If hospitals would familiarize themselves with the standard of the American College of Surgeons for hospitals taking obstetrical patients[9], and apply it, especially to colored wards, this situation could and would be improved.

Since the majority of hospital patients are urban women with easily available prenatal care, it follows that hospitals should present a much lower per cent distribution of toxemic deaths. Such did not hold true in this series. Negroes only seemed to gain protection from toxemia deaths in hospitals. Poor internatal care will undo the benefit derived from even the best prenatal care. The slightly higher incidence of accidental deaths in homes is probably without significance except that, since this group covers such a "multitude of sins" and the diagnostic facilities in hospitals are superior, hospital deaths should, and do less frequently, fall in this group.

There are many facts in this study that extend beyond the scope of this presentation. There is much that needs to be learned which requires a more detailed study than is here presented; such as quality of care received by each individual case, quality of hospital facilities available for obstetrical cases, and incidence and type of operative procedure preceding death.

Since Louisiana apparently maintains nearly the highest maternal mortality rate in the birth registration area it is imperative that an attempt be made to localize the source of blame for these deaths. It must rest in a combination of four places, namely:

1. Lack of appreciation of the need of prenatal, natal, and postnatal care by the laity.
2. Errors of judgment of the medical profession.
3. Failure of communities, hospitals, organized medicine, and allied groups fully to appreciate their responsibilities and opportunities.
4. Lack of the layman's appreciation of danger signals in pregnancy, and the danger of abortions of all types.

## CONCLUSIONS

It is difficult to draw conclusions from information that is presented with only sufficient accuracy as to convey mere ideas. A few facts seem rather certain, however:

First, in Louisiana there is a very high puerperal death rate that is not confined to the negro population. Puerperal diseases occupy a very prominent place in producing death among women of child-bearing age.

There is a need for detailed and accurate reporting of maternal death in order that statistics will be more valuable. We need to concentrate our attention particularly on the question of preventing and controlling sepsis, toxemias, and hemorrhage.

Organized medicine must play the leading part in improvement of maternal welfare. Facilities for a complete, detailed survey of our maternal mortality, as has been done by the Children's Bureau, the City of Philadelphia[10], and the State of Georgia[10] are very appropriate.

Hospitals play an important part in our mortality. They should be requested to provide for the minimum standard for maternity divisions as prescribed by the American College of Surgeons.

Various subdivisions of the State Medical Society should assume a definite cooperative plan aimed at educating the laity of the necessity of adequate prenatal, natal and postnatal care.* Furthermore, the resources of the several communities should be organized so that all mothers will be provided with means of acquiring the quantity and quality of care that they justly deserve.

Endless collections of statistics leads nowhere. We, as physicians, must manifest interest, action and harmonious cooperation to make maternity safer in Louisiana.

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### DISCUSSION

Dr. E. L. King (New Orleans): In this day of preventive medicine it seems there is no field that is more capable of giving us good results than this field of maternal welfare. Dr. Mays' figures need very little comment. The fact that we have the rather dubious distinction, you may say, of being down at the bottom of the list in the states of the United States is not a source of great gratification to us.

I noticed that approximately 15 per cent of all women, both white and colored, in the child-bearing period die from puerperal causes. As he brought out, the chief cases are sepsis, hemorrhage and toxemia. Those three groups are responsible in the United States for about four or five thousand deaths each per year, and we all know, of course, that those three things can be prevented in great measure.

It is well to emphasize also the fact, which he brought out, that we cannot take refuge in the supposed idea that the higher rate in Louisiana and other Southern states is due to the colored population. It is about the same, so we are just about as bad off, as far as the whites are concerned, as the colored.

We can talk all day on this subject, but responsibility on the two main points to be emphasized can be placed on the medical profession. One is that our patients need better prenatal care. Proper prenatal care will obviate a great many of these deaths. Next, they need better obstetrical care, which is a function of the profession and of course is a function of the schools in training doctors.

The lack of proper prenatal care is due in considerable part to the people themselves. That is one thing we have to get over to the laity, and that is one of the objects of the Maternal Welfare Committee appointed last year, and which we hope will continue to function.

The other problem is to get over to the doctors in practice the adoption of better obstetrical care, and that is tied up with the better observation of patients before they go into labor and a more conservative attitude during labor. It has been pretty well proved that the higher the operative rate in any institution or locality, the higher the maternal death rate. So our job, primarily, is to let the women in normal cases deliver themselves as much as possible and not interfere unnecessarily, and interfere only on proper indications and only in the proper way.

That is the main thing that has been brought out in this paper. If we can get the doctrine of prenatal care over to the people and have them come to the doctor or the clinic, no matter how well they are, we will have taken a step forward. I personally insist, in my private work and in my hospital work, that patients must come regularly, no matter how well they are or how well they feel. Secondly, when they do come, let us give them adequate prenatal care.

Finally, let us give them good obstetrical care when they do go into labor.

Dr. Walter E. Levy (New Orleans): I want to disagree with Dr. Mays on one point that statistical studies are uninteresting. I think they are very interesting, because I think they are the only way you can prove your point. Just to make odd statements and say this, that, and the other things are so, and not be able to back them up is a disgrace in medicine. I think Dr. Mays' paper is a point well taken when you can prove your point.

How we are going to do better by our women, I do not know. For the present, I think it resolves itself into better education of the undergraduate.

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* For a definition of adequate, see Standards of Prenatal Care. United States Children's Bureau, Publication No. 153, Washington 1925).

There are two articles in the A. M. A. Journal, by Kosmack and Adair pleading for that. Obstetrics is more or less a stepchild in the undergraduate school, and anybody who gets out with a diploma seems to think he has a right to take a pot-shot at it.

To me, it is a very definite specialty and some of the worst wrecks we see are those attempted by doctors who do not realize the seriousness of the situation. Suffice it to say, about 95 per cent of women will deliver themselves if left sufficiently alone. The other 5 per cent get into trouble. On the other hand, too much abnormal obstetrics is being done by some men because they are attached to a hospital and have a forceps in their bag. The English term is meddlesome midwifery.

One of the points we have to make is better teaching, and to leave things alone.

Prenatal care is the key point, I believe, for reducing maternal mortality. As brought out by Dr. Mays, eclampsia is a preventable disease when these women are seen in time and they are treated properly. I do not believe, in the last three or four years, we have seen an eclamptic that has had proper prenatal care. We may pick up an ambulance case. I think Dr. King takes a good licking out there on the cases sent in. Furthermore, in prenatal care you can realize contractions of the pelvis ahead of time and institute the proper treatment. I agree with Dr. Mays that it is begging the question to say that our maternal mortality is higher in the South due to the colored race.

Dr. T. B. Sellers, (New Orleans): Several years ago a movement was started by a group of obstetricians and gynecologists to establish a National Maternal Welfare Committee. This committee is now functioning and its activity has been extended to every state in the Union, Dr. E. L. King being selected as chairman of the Louisiana State Committee. He and his committee have been busy for the past year trying to sponsor the formation of sub-committees in the respective parishes with a view to bringing before the profession the need for better obstetrics and to promoting the formation of lay as well as professional committees on maternal welfare.

Inasmuch as about 90 or 95 per cent of all physicians of the state do obstetrics, Dr. Mays' paper should be a challenge to the doctors of Louisiana to overcome the deplorable condition which now exists.

Dr. Levy mentioned the importance of better training for students. I agree that this is timely, but we must not overlook the fact that over two thousand practicing physicians in Louisiana will handle the majority of obstetrics for the next ten or fifteen years; therefore, their interest and cooperation must be enlisted before we can hope to overcome the present high morbidity and mortality.

Dr. Rhett G. McMahon (Baton Rouge): I wonder if it is known that 54 per cent of the women dying yearly from maternal causes have not had even one prenatal examination by a physician. There is the crux of the thing. We do not have a chance to practice what we know on 54 per cent of them.

The thing, as brought out, is the education of the public. This is going to be undertaken by the Social Security Bill. Just a word of warning. If we are not careful, the medical profession will lose another field of preventive medicine. We have already lost one field, immunization of communicable diseases. If we do not look out for ourselves, we are going to lose another field, because the lay organizations, the public health boards and other organizations are ready to spring in and take advantage of the provisions of this Social Security Bill.

This is a question of education, it is true, but this education must be supervised by the medical profession. Who is best qualified to take care of it? The doctor, of course, the man who is called when they get into trouble. Therefore, we should look to our own interests and see that this field of preventive medicine is not taken away from us.

It is up to the doctor in the country to carry this education to these people and see that the 54 per cent who have not had even one prenatal examination, where a doctor has never put a finger on them or laid his eyes on them, are educated to adequate prenatal care and take advantage of the advancement in obstetrics. Our obstetrical technics have advanced with other fields of medicine. Our understanding of the toxemias, our treatment of emergencies and hemorrhages have all kept pace with the times, and not too much of the burden of this high mortality should be placed at the doctor's feet.

Dr. C. R. Mays (Shreveport): I should like particularly to thank Dr. Kibbe, of New Orleans, for furnishing the Death Certificates, and Dr. Sandige, of Shreveport for helping in the preparation of the charts.

One point I omitted when I presented the charts showing the hospital death rate, the most astounding figure in the whole group, was that 43 per cent of the colored women who die in hospitals die from sepsis. The relief of congestion in the obstetrical wards in the State would lower this a great deal.

Dr. Levy makes a plea for the education of physicians. That has been attempted, but it is generally found that the physicians who do not need the education attend the lecture courses, and those who do need it do not come.

Dr. McMahon's comment that 54 per cent of patients dying from puerperal causes never come for examination or have prenatal care is in keeping with the Children's Bureau Survey.

I do not think we should attempt to fix the blame for individual deaths without a detailed survey. We really are not entitled to theorize as to whether the patient, doctor or midwife is at fault. All are probably responsible for avoidable deaths at one time or another.

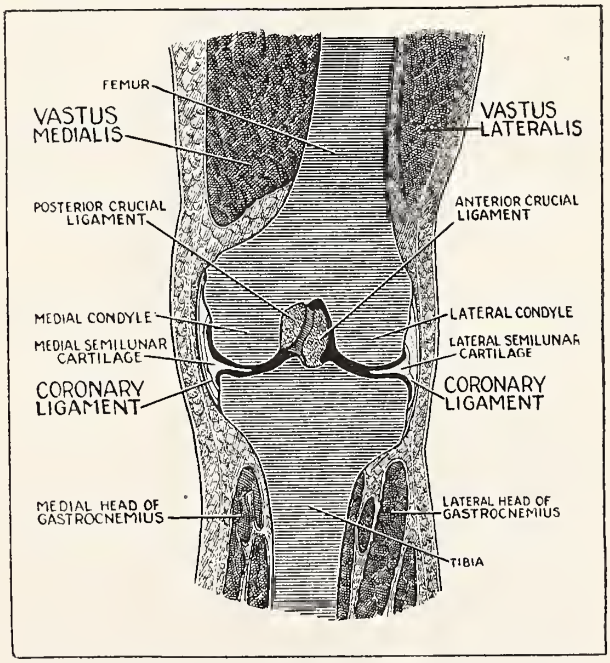
# THE SEMILUNAR CARTILAGE AND THE FOOTBALL KNEE

H. THEODORE SIMON, M. D.[†]

My first interest in semilunar cartilage injuries dates back to the World War, while attached to the Orthopedic Division at Walter Reed General Hospital in Washington, D. C. This hospital's location, near one of the largest artillery camps, made it the concentration point of a large number of knee injuries. Operative removals of the injured cartilages were done in a large number of cases with most unsatisfactory results. These bad results were probably due in part to lax or inexperienced operative preparation and technic and in part to the type of patient treated. Infections of knee joints were much too common following knee operations and even when convalescence was uneventful, the operated soldier had little desire to cooperate sufficiently so as to rehabilitate himself for full line duty. Finally, an order from the Surgeon General's office prohibited the routine removal of these cartilages and in part established a disinterest in this type of surgery for a period of years.

In the past few days, an ex-soldier was observed who had injured his knee in 1918 and who had the medial cartilage removed two years later. He was still wearing a very formidable knee and leg brace, his muscles were thoroughly atrophied, his knee capsule was relaxed and even knee motion was limited. The operation had been uneventful, no complications had occurred and he should have been thoroughly rehabilitated and discharged a few months after operation. Instead, he is today a dependent of the Government wholly because of his lack of desire to cooperate.

It was not until 1932 that my interest was revived in semilunar cartilage injuries. A change in the coaching personnel of football was made at the Louisiana State University. Following a check of the football squad, the new trainer, Major Frank Wandle, who had occupied a similar position at West Point Military Academy, requested examination of the available football material. A careful survey was made and much to my surprise, eleven semilunar cartilage injuries were discovered. Seven of these cases were later operated upon and their diagnosis confirmed. Cooperating with Major Wandle, I instituted a form of postoperative rehabilitation which has proved most satisfactory. The success of this rehabilitation plan can no better be described than by presentation of the report of excellent results obtained in 33 athletes from whom 35 semilunar cartilages have been removed in the past four years.


FEMUR
VASTUS MEDIALIS
VASTUS LATERALIS
POSTERIOR CRUCIAL LIGAMENT
ANTERIOR CRUCIAL LIGAMENT
MEDIAL CONDYLE
LATERAL CONDYLE
MEDIAL SEMILUNAR CARTILAGE
LATERAL SEMILUNAR CARTILAGE
CORONARY LIGAMENT
CORONARY LIGAMENT
MEDIAL HEAD OF GASTROCNEMIUS
LATERAL HEAD OF GASTROCNEMIUS
TIBIA

To understand semilunar cartilage injuries, is may be wise to recall the anatomy of the knee joint. The knee joint is the largest joint of the human skeleton. It is a trocho-ginglymus or compound joint between the two longest bones, the femur and the tibia with the largest sesamoid bone, the patella, incorporated in the tendon of the extensor muscle of the leg in front of the joint capsule. Its location makes it easily accessible to stress and strain and the length of its forming bones subjects it

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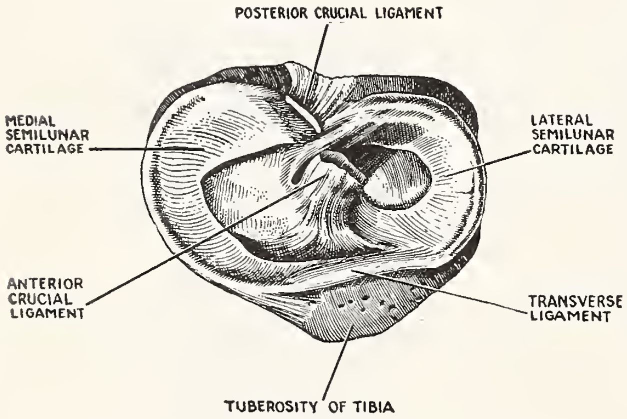
*Read before the Orleans Parish Medical Society, May 25, 1936.

[†] From the Department of Orthopedic Surgery of Louisiana State University Medical Center, New Orleans, La.

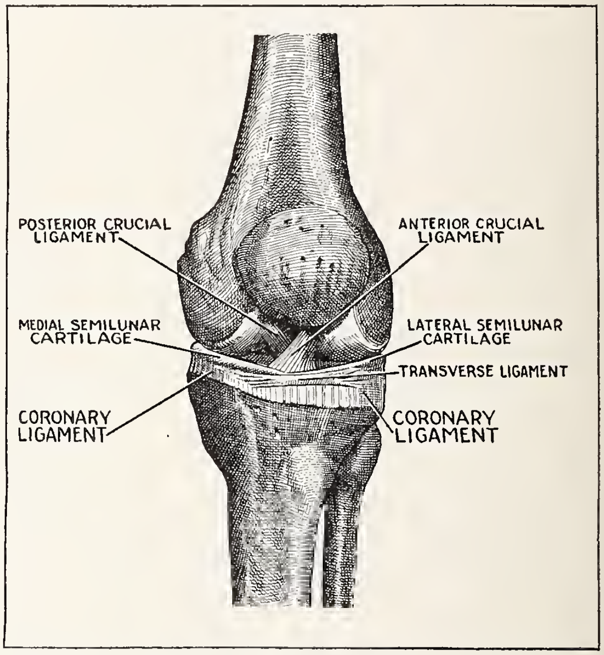
to tremendous leverage. Some anatomists find it convenient to consider the knee joint as a group of three joints: the one between the patella and femur, the second between medial condyle and tibia and the third between the lateral condyle and tibia. It is surrounded by a capsule and supported by ligaments both within and without the capsule.

The extra-articular ligaments are the following: the posterior, the internal lateral and the external lateral ligament. The external lateral ligament is a distinct formidable ligament while the internal lateral ligament is composed of some longitudinal fibres of the capsule and is in no sense strong.

The anterior and posterior crucial ligaments within the capsule are two broad thick bands crossing each other at the inter-condylar notch, joining the tibia to the femur and acting to prevent slipping of the tibia forward on the femur or vice versa.


POSTERIOR CRUCIAL LIGAMENT
MEDIAL SEMILUNAR CARTILAGE
LATERAL SEMILUNAR CARTILAGE
ANTERIOR CRUCIAL LIGAMENT
TRANSVERSE LIGAMENT
TUBEROSITY OF TIBIA

The semilunar cartilages or menisci are two fibro-cartilaginous discs each lying on top of the tuberosities of the tibia. Their purpose is to deepen the space for movement of the condyles of the femur. The lateral cartilage is almost round or "O" shaped while the medial cartilage is semi-circular or "C" shaped. These cartilages have their thin edges free to the center of the joint and their thick outer borders are attached to the joint capsule. The terminal ends of both cartilages, known also as cornua or horns, are attached independently and rather firmly. The anterior horn of the medial cartilage is attached to the roughened surface near the anterior border of the tibia, its posterior cornu is attached behind the tibial facet of the spine of the tibia. The anterior cornu of the lateral cartilage is attached to the fibular facet of the spine of the tibia and its posterior horn joins the posterior crucial ligament. From this description, it is evident that the cornua of the lateral cartilage are almost in contact with each other while those of the medial cartilage are widely separated.


POSTERIOR CRUCIAL LIGAMENT
ANTERIOR CRUCIAL LIGAMENT
MEDIAL SEMILUNAR CARTILAGE
LATERAL SEMILUNAR CARTILAGE
TRANSVERSE LIGAMENT
CORONARY LIGAMENT
CORONARY LIGAMENT

Both cartilages have ligamentous attachments; the anterior transverse ligament joins both in front, while the coronary ligaments are the inferior portions of the capsule joining the periphery of the semilunar cartilages to the tibia. The coronary ligament of the lateral cartilage is nearly twice the length of the same ligament of the medial cartilage. The length of this ligament and the closeness of the cornua, allow the lateral cartilage to move rather freely on the tibia. On the other hand, the medial cartilage is fairly firmly fixed. This point is of extreme importance in considering the mechanism of meniscus injury.

It must be remembered that in addition to ligamentous support, the muscular control of a joint is of extreme importance. Bristow[1] is one of the few authors who has stressed the importance of muscle control in the knee joint and has emphasized that the muscle is the first line of defense to any damaging force which might be applied to this joint. The second line of defense is the ligaments which have been described. The weaker the muscle, the easier the defect of the first line of defense; this results in traumatism being borne by ligaments and cartilages. In the case of the knee joint, the tone of the quadriceps extensor group is of paramount importance and in my opinion is the deciding factor between few and many knee casualties in football. A quadriceps group which is properly toned not only permits of better joint function but actually prevents strain and damage to the knee joint. The vastus medius and lateralis muscles have some attachment to the capsule of the joint and these muscles, if of proper quality, keep the capsule and lateral ligements taut and supportive. Wasted lateral muscles will allow of marked relaxation of the capsule and lateral ligaments and will favor internal derangements of the knee joint. Muscle influence can be illustrated by recalling the finding of the 11 semilunar cartilage injuries at one time in a single footfall squad. In my opinion, this great number of injuries had been caused by utter disregard for muscle training prior to actual contact in football. The first day of football practice should not be devoted to the issuing of football uniforms and scrimmage should not follow the immediate donning of these uniforms.

Landry[2], in his recent article on football injuries, pointed out a conclusion of Eastwood who emphasizes the lessened number of football injuries when four weeks of training preceded actual scrimmage and playing.

As before stated, the knee joint is not a simple hinged joint, but is a compound joint. The lack of symmetry of the external and internal condyles of the femur demands that rotary deviations take place at the beginning of flexion and at the end of extension of the knee. This rotary departure from a true hinged joint, although slight, is quoted by Kulowski[3] as probably the chief cause of internal derangements of the knee joint and it is undoubtedly the cause of most semilunar cartilage injuries.

Rotation in the knee occurs in the position of flexion. In extension, the knee is sufficiently locked to prevent rotary motion. Rotation takes place in that part of the joint between the tibia and the internal condyle and that part of the joint between the tibia and the external condyle, depending on the direction of movement. As the condyle rotates on the tibia, the semilunar cartilage moves away and it normally escapes impingement. The lateral cartilage has been shown to be fairly freely movable and because of this movement it escapes even forced rotation. The medial cartilage is more firmly fixed and its possibility of escape is lessened. A football player tackled or blocked laterally, at the moment his foot is fixed to the ground, with his knee flexed, receives a trauma which causes sudden and excessive rotary knee motion. This abnormal motion is the force which impinges or crushes the meniscus and thereby detaches or fractures it. This results in a large number of medial cartilage injuries compared to those of the lateral cartilage as will be borne out in the statistics of these 33 athletes.

The history of the primary injury is one of traumatism to the knee, with the knee in the flexed position. There then ensues a sharp pain with a sensation of catch or slip in either the lateral or medial portion of the knee joint. The activity of the player is immediately stopped, and, as a rule, he falls to the ground because of loss of control of the limb and the associated pain. If the cartilage has been torn and displaced, there is a sense of locking and sometimes an inability of the patient to extend his own knee. Passive extension is then necessary by a second person. If the cartilage remains displaced and incarcerated, the knee cannot be completely extended without the replacement of the torn cartilage. Sometimes, immediate swelling occurs and is caused by hemorrhage; latent swelling usually occurs in a few hours and is the result of synovial fluid increase.

It is not the purpose of this paper to describe conservative treatment of the initial cartilage injury. The main purpose is to present a group of cases which have had repeated recurrences of symptoms following the primary injury. These secondary recurrences have incapacitated these athletes and have made them useless for competition and in fact many would have been handicapped in civilian life. Because of the chronicity of the condition, the method of treatment can be only one of operative removal. The diagnosis in these cases was made by a careful history and by careful clinical and radiographic examination. For the past eighteen months I have used a newer method of diagnosis which I originated with the aid of my associates.[4] The method consists of standardization of air pressure in the knee joint by air injection to 160 mms. mercury pressure. Radiographs taken immediately after injection lend to excellent interpretations and have made it possible to prognosticate the actual type of damage and the actual cartilage or cartilages injured. These interpretations have been proved at operation in 16 cases.

### TECHNIC OF OPERATION

Extreme care is exercised in the preoperative preparation of the limb. Forty-eight hour skin preparation is employed whenever possible, this means the shaving, scrubbing, alcohol washing and sterile bandaging of the knee area forty-eight hours and again twenty-four hours prior to operation.

A tourniquet is employed in all cases. It is essential that the tourniquet be efficiently applied.

A lateral skin incision is used. The incision is made three inches in length, one finger's breadth from the patella and extending across the knee joint. The incision is made to the lateral or medial side depending on the involved cartilage. Careful surgical asepsis with careful observation of assistants' and nurses' movements have been religiously followed. All blood vessels when seen are caught and ligated. Towels cover the skin edges. The incision is carried through capsule and synovial membrane and the joint is exposed. The knee is then flexed to a right angle by breaking the operation table; careful retraction permits of thorough observation and positive diagnosis. The cartilage is removed in the routine manner taking away as much of the cartilage as possible. In some instances, where there has been posterior peripheral detachment, the entire cartilage has been removed. By retraction of the alar ligament, it is often possible to observe the opposite cartilage. The synovial memrance is then closed with a running suture of plain No. 1 catgut, the capsule with a running suture of chromic No. 2 catgut and the skin incision is sutured with interrupted dermal "U" sutures. A dressing is applied and a 4 inch ace bandage applied in an anterior figure of eight dressing gives excellent compression. The ace bandage is the only fixation used.

The first two or three post-operative days are uncomfortable and may require morphine or similar hypnotics. A back rest can be employed on the third or fourth day and the patient is usually allowed in a rolling chair with the operated limb elevated on the fifth day. The sutures are removed on the eighth day and the patient is allowed to walk, perferably with a cane for support. Crutches are discouraged. The ace bandage is used constantly.

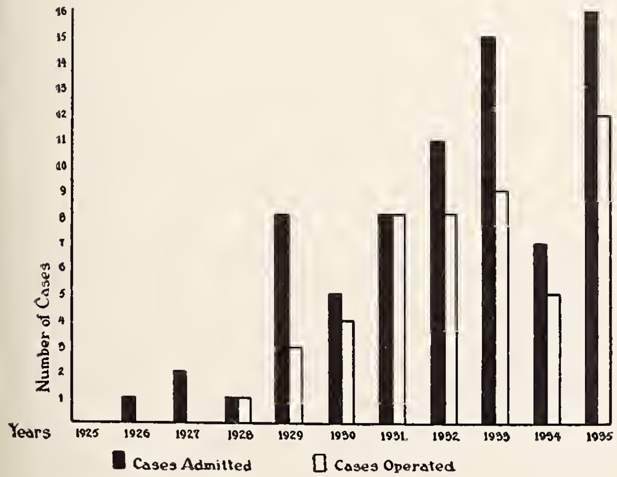
Following operation there is occasionally hemorrhage or excessive synovial fluid accummulation. Too much joint distention calls for immediate aspiration.

With the athlete leaving the hospital comes the question of rehabilitation. The authors of most texts on orthopedics state that no follow-up treatment is necessary and that the patient can satisfactorily work out his own salvation. This, in the opinion of the writer, is decidedly erroneous and should never be followed when dealing with patients who are to be rehabilitated to rapid efficiency and physical condition which will allow athletic competition.

With the removal of the sutures, the patient is returned to the University. He is encouraged to walk as much as is comfortable and it is insisted that he flex his knee in walking. It is interesting to note that knee motion is painless in a very short time and if encouraged, the patient is able fully to flex his knee within a period of two weeks after operation. Daily infra-red baking and massage of the thigh and and calf muscles is ordered. Sinusoidal stimulation of muscles is of advantage and where there has been marked atrophy of the quadricep extensor group this type of electric stimulation is instituted. Fourteen days after operation, the patient is given daily diathermia treatment to the knee for twenty minutes and is then compelled to peddle a stationary bicycle. The time on the stationary bicycle is daily increased and as his musculature develops, the friction apparatus of the bicycle is tightened so as to simulate peddling up an incline. Within a week it is usually possible to have the patient doing the equivalent of fifteen or more miles daily on the bicycle. The cane is discarded as soon as the patient gains confidence and the ace bandage is likewise dispensed with. With still further improvement of the muscles, the patient is encouraged to climb steps and inclines. The stadium at the football field is an excellent place for this type of exercise. At the end of the sixth week, the majority of the patients have been fully rehabilitated and are in a position to enter light competition. It has not been my practice to encourage very active football at this time and most athletes were operated at times that would allow several months of training before active practice and competition.

At the Charity Hospital of New Orleans, Louisiana, in ten years (1925 through 1935) 74 semilunar cartilage injuries have been admitted and 50 of these cases came to operation. The table of statistics relative to these admissions will show that in the past few years more interest has developed in this type of injury, more diagnoses have been made and a larger number of cases have been operated. In the four months of this year there have been 12 admissions and eight operations.

Semi lunar Cartilage Injuries
admitted to State Charity Hospital, New Orleans



It is desired to report 33 athletes from whom 35 semilunar cartilages have been removed in the past four years. Twenty-two of these cases have been treated at Hotel Dieu and 13 at Charity Hospital. Thirty of the 33 patients presented injuries to the medial semilunar cartilages alone, one patient an injury to his lateral semilunar cortilage and two patients injuries to both medial and lateral cartilages of the same knee. Twenty-four of the cartilage injuries occurred in the left knee and 11 in the right knee. Tables of statistics on cartilage injuries in civilian life show about an equal number of left and right knee injuries with a slight preponderence of the left knees in some instances. Since the ratio in this series is more than two to one, it is apparent that certain manoeuvres or contacts in football favor left knee injuries and persons familiar with the elementary principles of football, have described to me the relative frequency of blocking and tackling to the left side. Most players were ends, backfield men and centers. Only one tackle was found in this series, again showing that blocking and tackling of the offensive player is highly responsible for the injury.

The pathology found in these cartilages is as follows:

MEDIAL MENISCI INJURIES

| | No. of Cartilages | Right Knee | Left Knee |
|---|---|---|---|
| 1. Anterior detachments | 16 | 6 | 10 |
| 2. Longitudinal splits | 3 | 2 | 1 |
| 3. Detachments at periphery | 4 | 0 | 4 |
| 4. Bucket handle tears | 5 | 2 | 3 |
| 5. Transverse fractures | 2 | 0 | 2 |
| 6. Hypermobile cartilages | 2 | 1 | 1 |
| Total | 32 | 11 | 21 |

LATERAL MENISCI INJURIES

| | No. of Cartilages | Right Knee | Left Knee |
|---|---|---|---|
| 1. Anterior detachments | 2 | 0 | 2 |
| 2. Longitudinal splits | 1 | 0 | 1 |
| Total | 3 | 0 | 3 |
| Grand Total | 35 | 11 | 24 |

Of the 33 knees operated on, there was no evidence of knee infection or anything which resembled an infection. In eight of the cases, distention of the joint by blood and synovial fluid required knee aspiration.

All skin incisions healed by primary union with the exception of one case in which both cartilages were removed, he developed a large hematoma of the subcutaneous tissues; this required removing several skin sutures and secondary suture. Smaller hematomas occurred in several additional cases but did not interfere with healing of the incision.

One patient developed an acute attack of his chronic malarial infection and was a source of worry until his blood was reported positive for malaria. One patient developed a cystitis from repeated catheterization of the bladder; two patients who were manipulated by inexperienced persons in an attempt to obtain knee extension in an incarcerated cartilage, presented evidence of erosion of the articular cartilage of the medial condyle from traumatism produced by the manipulation. One patient operated before by another surgeon had a transverse fracture of the remaining posterior half of his cartilage. One patient with a medial meniscus injury presented radiographic evidence of Pellegrini-Stieda's disease, which is calcium deposition in the lateral ligaments. Eighteen of the 33 patients were from the Louisiana State University, two were from Loyola University, one from the University of Oklahoma and the remaining 12 from High Schools and secondary colleges in the State of Louisiana.

Of the 18 patients from the Louisiana State University, seven were from the original 11 knee injuries found, eight had sustained the initial injury in high school football and only three originated at the University in the course of four years. This again emphasizes the benefits of scientific training and muscle conditioning and proves that a football coach's first lieutenant is his skilled trainer.

All patients presented normal knee function and returned to their athletic activities with the exception of one who presented the evidence of a Pellegrini-Stieda's disease, and who seemed to dread contact football. One player operated on for a lateral cartilage, after months of competition, developed a medial cartilage injury which now needs surgery; at the time of operation, his medial cartilage was noted as normal. A third player (one of the two with the condylar cartilage eroded) entered professional baseball and was active for a period of two years; he recently has sustained a lateral ligament injury which is clearing and he is now doing light work.

### CONCLUSIONS

1. Sufficient evidence has been presented to justify the conclusion that suitable preliminary muscle training will minimize the possibilites of semilunar cartilage injuries.

2. While a semilunar cartilage removal is not the minor operation reported in the sports columns, yet this operation is comparatively safe if precautions and diligence are used.

3. A group of 33 athletes have been operated, 35 menisci have been removed and normal knee functions were obtained in all cases.

4. Recurring knee disabilities from semilunar cartilage pathology requires operative removal for return to athletic activities.

5. In civilian life, similar knee disabilities are also a serious handicap and often jeopardize the life and limb of the person by a knee lock at a precarious moment.

6. Menisci removals alone do not make good football players; still, it has been a keen sense of satisfaction to me to know that I have rehabilitated a number of players who have made football history in the South.

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# CONCERING THE BIOPSY*

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SHREVEPORT, LA.

Prognosis and intelligent treatment of cancer require an exact diagnosis. Probably in no other specialty of medicine is the correct plan of therapy as uniformly and urgently dependent on the diagnosis as in cancer. To determine whether a tumor is benign or malignant, carcinoma or sarcoma, usually is not sufficient. The diagnosis must identify the process as a particular neoplastic disease, a definite clinical entity. The attitude that cancer is a single disease, much the same under all circumstances, is partly responsible for the lack of preparation with which the average physician approaches the diagnosis of cancer. Several years ago Ewing proposed that there are as many separate clinical entities of a neoplastic nature with fairly characteristic natural histories and clinical courses as there are disease entities due to inflammation. The adoption of such a concept is necessary for an intelligent approach to both the diagnostic and the therapeutic problems in the neoplastic field.

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†From the Department of Pathology, Shreveport Charity Hospital.

*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

Of what does the diagnosis of cancer consist, and by what means is it accomplished? Ewing says: "A diagnosis may be said to have been obtained when the clinician has been placed in command of data which will enable him to understand the origin, cause and prognosis of the case in hand. This information must include the results of the physical examination of the patient, roentgenologic study, and of histologic study, which reveal the structure of the tumor, the origin of the tumor, its grade of malignancy, and the grade of radiosensitivity. Without all these data the diagnosis must be regarded as incomplete."

Such a complete body of diagnostic information is often lacking, notwithstanding the fact that the welfare of both the patient and clinician may suffer in the departure from this ideal.

A clinical diagnosis based on the history and physical examination of the patient in early cancer, in which the prospect of cure is greatest lacks certainty in the majority of cases and requires histologic confirmation. Cases in which the clinical diagnosis is incontestable are often candidates for palliative treatment only. Moreover, the true condition of precancerous and borderline lesions, in which adequate treatment for these might prove inadequate in case of malignant change, can be determined only by microscopic examination of tissue removed for diagnosis. The differentiation between certain inflammatory ulcers and cancer by biopsy rather than by a therapeutic test suggests obvious advantages. The foregoing indicates in a general way the necessity of biopsy in the diagnosis of cancer and brings us to some of the more practical considerations of this procedure.

Is the biopsy safe? Conclusions in this respect often appear to have been based on clinical impressions rather than on scientific proof. The nature of the question itself is such that it does not permit of such generalizations as the procedure is safe or unsafe. To contend that the biopsy is safe under all circumstances is probably as erroneous as to claim that it is generally a dangerous procedure. Such factors as biopsy technic, type of tumor, anatomical location of the tumor, and the nature of the structure involved must be considered in attempting to reach acceptable standards on this point. Moreover, the clinician is frequently faced with the necessity of deciding whether the possible dangers of the biopsy will outweigh its advantage to the patient.

### SKIN AND MUCOUS SURFACES

In general it may be said that both clinical and experimental observations indicate that biopsy of the skin and the mucous surfaces is safe. In two large groups of rats which were inoculated simultaneously with one of two varieties of sarcoma normally prone to metastasize, Wood found no more metastases in biopsied rats than in those having the tumor excised on the same day biopsy was made. On the clinical side, Roux-Berger observed no evidence of harm from careful excision of tissue for diagnosis in 825 consecutive cases of lingual cancer at the Curie Institute. It is my opinion that there is little or no danger in carefully removing a small piece of tissue from an exposed, ulcerated surface or entirely excising small, superficial, movable nodes. Moles showing clinical signs of activity should be excised with a wide margin of uninvolved skin, subcutaneous tissue and, in some instances, the underlying deep fascia and regional nodes. An ulcerated melanoma has usually metastasized when it comes under observation.

### BREAST

The radical operation for mammary cancer is of such severity and extent that it should not be performed unless the diagnosis of carcinoma is positive. Since physicians are now seeing mammary disease at an earlier stage, often before characteristic clinical symptoms of cancer are established, the diagnosis is more difficult and frequently requires biopsy. Incision for biopsy of the breast is unsafe unless there are facilities for quick diagnosis and unless the surgeon is prepared to carry out the radical operation for mammary cancer in the event the pathologic report is positive. The practice of removing a nodule or a portion of a nodule and waiting several days for a report from a distant pathologist exposes the patient to developments which may lessen her chances for cure even with radical amputation. The mechanical trauma caused by such a procedure might easily dislodge cancer cells and the delay of several days affords an opportunity for the loosened malignant cells to reach distant lymph nodes.

There is a difference of opinion as to the best method of obtaining biopsy from the breast. Some surgeons prefer to cut directly into the tumor and make a diagnosis on gross appearance which is usually specific, or remove a piece for frozen section. If the section is positive for cancer the wound is closed over gauze soaked in 10 per cent formalin, the instruments and gloves used in obtaining the biopsy are discarded and the radical operation is performed. If the tumor is bulky this method avoids the trauma incident to a rather extensive operation of removing the tumor mass. It is probably safer to excise small tumors with a wide margin of healthy breast tissue and with extreme care not to squeeze them. This procedure avoids incision of cancerous tissue, and if caution is exercised not to squeeze the mass, cancer cells should not be disseminated.

The objections to incision through normal tissue to obtain biopsy may be avoided by aspirating breast tumors with an 18 gauge needle. This method was first described by Martin and Ellis in 1930, and has never enjoyed the popularity that its value as a diagnostic procedure deserves. This is due in part, at least, to the pathologist's unwillingness to experience himself in the interpretation of this type of biopsy preparation. The method is useful not only in breast tumors but may be used in any tumor which lies beneath the surface of normal tissue. It furnishes a convenient means of estabishing a histologic diagnosis in cases to receive preoperative irradiation and in those cases that may be treated altogether by irradiation.

### CERVIX UTERI

The curability of cancer of the cervix depends on an early diagnosis. In view of this necessity, it is unfortunate that the cervix is functionally silent and allows cancer to reach an advanced stage in many instances before producing subjective symptoms. This group is substantially increased from patients who fail to heed symptoms of early cancer when they do occur and from cases in which an early diagnosis by biopsy has been delayed to observe the effect of various therapeutic measures. Healy found only 12.5 per cent of 1574 cases of cervical cancer with the disease confined to the cervix so far as could be determined clinically. The results of therapy in this group of early cases, however, show the limitations of determining the extent of the disease clinically. Only 55 per cent of this group were free from disease at the end of five years. If the cancerous process had been confined to the cervix in each case, the entire group should have remained cured for five years. Such an observation emphasizes the necessity of establishing a positive diagnosis in many cases before the clinical diagnosis is obvious. This can be done only by removing a small piece of tissue from the suspicious area or areas for microscopic examination. In lesions of the portio vaginalis, not ulcerated or eroded, the Schiller iodine test may be of value in locating abnormal areas in the epithelium. In a normal portio the epithelial cells contain glycogen granules which are stained by iodine. The cells in abnormal epithelium, as in leukoplakia and early carcinoma, contain no granules and therefore lack staining. The test is not specific for cancer but useful in locating an abnormal area in the epithelium from which a biopsy may be taken.

As a matter of record, there should be a biopsy on all cancer of the cervix, even advanced. By this means an exact diagnosis with the grade of malignancy and degree of radiosensitivity may be obtained. Moreover, the occasional surprise, both as to disease and type of disease, furnished by biopsy, even to the physician of wide experience, recommends the procedure as routine.

Biopsy of the cervix faces no real evidence that would indict it as a dangerous procedure. I am of the opinion that the clinical examination in an attempt to determine the extent of disease, which requires considerable handling and manipulation of the cervix, corpus and adnexa, is more likely to produce metastases than a properly taken biopsy. Any method of biopsy which applies crushing, pulling, twisting or tearing in obtaining tissue is capable of dislodging cancer cells and should be avoided.

### CORPUS UTERI

Corpus carcinoma occurs in several well defined histologic types in which the clinical course and prognosis differ and in which the treatment may vary. The diagnostic curretage is required both to establish a diagnosis of cancer and to determine the histologic type of disease.

### BONE

Bone sarcoma is usually fatal. Therapeutic results in this important group of diseases are unlikely to improve as long as the physician waits for the diagnosis to become obvious. Ewing has emphasized the necessity of suspecting osteogenic sarcoma on clinical signs and has urged that a provisional diagnosis of sarcoma be made in every case with persistent, unexplained bone pain. The radiograph at this stage is often negative or not characteristic and the biopsy frequently does not clear up the obscurity.

There are several serious objections to incisional biopsy in bone sarcoma: (1) It destroys the integrity of the capsule which is an important barrier against growth; (2) surgical trauma stimulates marked increase in tumor growth; (3) there is no malignant tumor in which tumor cell emboli break into vessels more readily and (4) the biopsy of bone tumors is usually a considerable operation and unexpected complications such as hemorrhage and infection may arise.

In view of these objections and inasmuch as there are several sources of error which impose serious limitations on the histologic diagnosis in this field, the surgical biopsy should be the last step in the diagnostic procedure. Full clinical and roentgen ray data, in experienced hands, yield a positive diagnosis in most cases (Ewing). Moreover, the experienced pathologist requires full knowledge of the clinical and roentgen ray data before making a diagnosis and, as Ewing has said, very often finds that the general data furnishes the diagnosis and strongly influences or decides the histologic report.

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### DISCUSSION

Dr. Neal Owens (New Orleans): I think that in all too many instances it is a calamity for a biopsy not to be considered in attempted eradications of questionable growths. Frequently the surgeon attempts eradication of an unknown growth without all necessary instruments of precision, and most frequent among those instruments missing are those for performing a biopsy. With the equipment we have today, frozen section machines on mobile units which can be carried to the operating room floor, it is possible for the surgeon to observe tissue under the microscope within three and a half to four minutes after its removal.

Many of these questionable growths, either borderline or early cancer, if properly examined at the time of first operation, would receive more radical resection and patients thereby be saved unfortunate sequelae. We feel that all growths in questionable cases should have a biopsy by frozen section. We feel also that these questionable cases should have a complete set-up, including a frozen section machine, which is adequate for every type of biopsy indicated. One who assumes that a surgeon can by macroscopic examination determine with accuracy whether an incision is within or without cancerous tissue is doomed for future disappointments. In recent months we have had four cases of cancer of the lower lip, and in every instance the macroscopic appearances led us to feel that we were well beyond the tumor growth. Yet microscopic examination revealed that an incision had been made within cancerous tissue. In the above mentioned cases I feel that the biopsy was of distinct advantage to the patient in aiding complete eradication, for certainly with the aid of frozen section biopsy in those cases we were able, by using it as a guide, to tell the patients that the excision was well beyond cancerous tissue.

Dr. Harold G. F. Edwards (Shreveport): I wish to say a few words along the same line. It has been my pleasure to take some 3,000 biopsies within the past few years and Dr. Mathews has made a study of all these sections.

My experience with the aspiration type of biopsy dates back some six years. Within the past three and a half years I have come to use the Hoffman biopsy punch. I have been able to perfect my technic in taking biopsies and am able to secure satisfactory tissue in 95 per cent of the cases. The Hoffman biopsy punch entails a little more trauma than the aspiration needle, but I think that the amount of tissue that one obtains is sufficient to warrant its use because it permits one to make a better study than a biopsy taken by simple aspiration. I have done about 100 punch biopsies and 75 per cent of these cases have been verified either by subsequent operation, that is, removal of the tumor or removal of the nodes, or postmortem examination, and we were surprised to find that they check in 95 per cent of the cases. Occasionally, we will enter a section of tumor which is necrotic and the report will be necrotic tissue, then a repeat biopsy should be done. I think so far as the open and ulcerated lesions of carcinoma are concerned that book is closed. There should be no question of the safety of it.

We must take repeated biopsies to get correct tissue. In the breast, the punch biopsy can be done as safely as making an examination of the breast. The Hoffman punch offers a method of cauterizing the needle track after the biopsy has been taken; an electrode is provided which may be attached to any machine using bipolar coagulation. It may be well reasoned that if interstitial radium needles is a safe procedure, and few will deny that it is not safe, then simple needle biopsy should not be criticised.

It is my belief that when the Fishbeins of the medical profession come to realize cancer as much as the public does more biopsies will be done and we will get the patients earlier, at a time when we are able to produce cures. Until then, I think cancer is going to remain second as a killer of mankind.

Dr. W. R. Mathews (in conclusion): I am glad Dr. Edwards referred to the punch biopsy which I consider a useful procedure and a more conservative method than incisional biopsy. While I am partial to aspiration, I must confess that he has remarkable success in obtaining tissue with the punch. I should like to emphasize that a negative result by either method does not necessarily rule out malignant disease. It is obvious that a small area of cancer in such an organ as the prostate or a small malignant focus in an otherwise benign tumor mass may be missed by these methods. It is more difficult to obtain tumor tissue from a scirrhous cancer than from medullary carcinoma by aspiration. Despite these limitations, these methods with practice and proper performance, yield tissue sufficient for diagnosis in the great majority of cases in which they are applicable.

The physicians who first see cases with malignant diseases are under a grave responsibility. Medical advice is sought early by many patients with cancer, but because of the lack of characteristic clinical signs and symptoms of carcinoma or because the individual is considered too youthful for malignant disease, he is kept either under observation until the clinical diagnosis of malignancy is beyond doubt or is dismissed with the assurance that there is nothing to be alarmed about. Once a case comes to the doctor, he must take the responsibility for seeing that a definite diagnosis is made as early as possible. In this respect, whether he treats the patient or not, the doctor largely determines the ultimate prognosis in the case.

# A CLINICAL ANALYSIS OF 309 SURGICAL AUTOPSIES

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During the year 1933 there were performed in the New Orleans Charity Hospital 309 autopsies of surgical interest. This material we began to analyze for the purpose of determining the exact incidence of embolism as a cause of sudden or inexplicable postoperative death. We had long felt that this catastrophe was by no means as frequent or as important an explanation of such tragedies as death certificates would lead one to suppose that it was. Our study proved unexpectedly simple. In the 141 operative cases embolism was set down as the cause of death five times and proved to be the cause of death three times, but the two groups involved entirely separate cases. Embolism was not the cause of death in any case in which it was diagnosed clinically, nor was it diagnosed clinically in any case in which postmortem examination proved it to exist. That is an illuminating commentary upon the accuracy of our death certificates and upon our diagnostic acumen.

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Our original investigation, as we say, proved unexpectedly brief, but our analysis of this material proved so interesting from other points of view that a brief report of it seems warranted. Of the 309 autopsies, 119 were for malignant and 190 for non-malignant disease. One hundred and nineteen were performed on white subjects and 190, very nearly two-thirds, on negroes. The age distribution showed 13 cases under 5 years of age, seven under 10 years, seven under 20 years, 28 under 30 years, 39 under 40 years, 59 under 50 years, 89 under 60 years, 50 under 70 years, and 17 over that age.

We must emphasize in the beginning certain facts which have been overlooked or ignored in various other reports of autopsy material. In the first place, a relatively small series of necropsies such as this gives absolutely no information about the local or general incidence of any disease and no information whatever about its local mortality. Such statistics are sometimes interpreted from these points of view, but we can see no justification for it. Unless the number of autopsies approximates the total number of hospital deaths, which it rarely does in this country, any such deductions are misleading and erroneous. Usually the situation is what it is here: the number of autopsies secured depends entirely upon the alertness and interest of the interne staff, which goes back, of course, to the interest of the senior staff, combined with the intelligence or the ignorance of the persons one happens to be dealing with, and the local sentiment in the matter. In Charity Hospital deductions as to the racial incidence of disease and racial mortality would be very misleading if made up on the basis of postmortem studies. The high percentage of autopsies on negroes is not due to any special success on the part of the internes in dealing with negro patients or to any particularly enlightened sentiment among them or their relatives. It is chiefly due, we would say from our experiences on our own service, to the fact that negroes rather frequently enter the hospital friendless or penniless or both and that in such cases their relatives are seldom in a position to make provision for their bodies. The result is that after an adequate delay to satisfy legal requirements, such bodies are available for postmortem study. Among the white patients, who are admitted to the hospital in slightly greater numbers than the negroes, such a situation does not very often arise, and the number of white postmortems is correspondingly smaller.

We can, however, fairly comment as we go along on at least certain of these conditions because we have at our disposal an adequate body of material concerning them. For some years past various members of the Department of Surgery of the School of Medicine of Louisiana State University have interested themselves in studying certain diseases as they are exhibited in the Charity Hospital, and particularly as they are exhibited in the negro race. Against such an adequate background we can fairly comment on certain of these postmortem data.

The distribution of cases in the malignant group includes: 21 cases of carcinoma of the stomach; 14 of the urinary tract; 13 of the pancreas; eight each of the large bowel, breast and face; four each of the gallbladder, esophagus, liver, rectum and lung; two each of the larynx and bronchus; one each of the thyroid, gluteal region, bone, orbit, inguinal region, muscle and mediastinum. Also included are two cases of Hodgkin's disease, two of hypernephroma, one sarcoma of undetermined origin, and 11 cases of gynecologic malignancy, 10 involving the cervix and one the vulva. The non-malignant group includes: 20 cases of appendicitis; 17 of peptic ulcer; 15 of gangrene of the extremities; 12 of intestinal obstruction; eight of benign rectal stricture; seven of suppurative arthritis or osteomyelitis; six of trauma; five of stricture of the esophagus and five of empyema and lung abscess; four each of tuberculous disease and liver abscess; three of cholecystic disease; two each of infections of the dangerous areas of the face, thyroid disease, aneurysm, peritonitis, and the brain and nervous system; 14 miscellaneous infections; and four miscellaneous conditions. Also included are 34 gynecologic postmortems (uterine fibroids, pelvic disease, tubo-ovarian abscess ectopic pregnancy and miscellaneous conditions); two obstetrical and two otolaryngological postmortems; and 18 genito-urinary postmortems, chiefly prostatic hypertrophy.

In the malignant group the causes of death include: cachexia 33 times; pneumonia 26 times; renal complications 14 times; peritonitis 11 times; cardiac complications nine times; hemorrhage six times; cholemia five times; gangrene and lung abscess three times; shock, coronary thrombosis and circulatory or respiratory collapse twice each; intestinal obstruction, sepsis, thrombophlebitis of the iliac vein, thrombosis of the vena cava, hemopericardium and pulmonary atelectasis once each. In the non-malignant group the causes of death include: peritonitis 54 times; pneumonia 23 times; toxemia and renal disease 14 times each; ileus 11 times; cardiac disease 10 times; shock seven times; septicemia 6 times; hemorrhage 5 times; embolism 3 times; intestinal obstruction, pylephlebitis, intestinal infarction, lung abscess, pulmonary edema, tuberculosis, aneurysm, mediastinitis and cavernous sinus thrombosis twice each; subphrenic abscess, rupture of the esophagus, the liver-kidney syndrome, sepsis, anesthesia, gas bacillus infection, cerebral atrophy, thyroid crisis, respiratory failure, dilatation of the stomach, prevesical abscess, persistent thymus, encephalitis, thrombophlebitis of the vena cava, and Addison's disease once each. In two cases, both ruptured peptic ulcer treated surgically, there was no demonstrable cause of death, a state of affairs which not infrequently exists.

It is easy to see that there are certain chief causes of death. In the malignant group 94 of the 119 deaths were due to cachexia, pneumonia, peritonitis and renal and cardiac complications. In the non-malignant group 126 of the 190 deaths were due to peritonitis, pneumonia, toxemia, ileus and renal and cardiac complications. Death from pneumonia, peritonitis, and cardiac and renal conditions are common to both groups.

In the malignant group it is a tragic commentary on the sort of material handled in Charity Hospital that not a single patient could be considered as a good or even a fair risk, which means, in turn, that not a single one of these patients was seen at a period when the prognosis was in any degree hopeful. In the whole group only six radical, curative operations were attempted, and only 21 palliative procedures. Seven other patients were subjected to diagnostic procedures, among which we have included exploratory laparotomy, chiefly, it would seem, in the interests of scientific accuracy, and three were given radium, all patients with carcinoma of the face or mouth. The questionable wisdom of using radium under these circumstances is seen in the fact that in two of the three cases necrosis of the mandible followed the application.

Of the 190 patients in the non-malignant group only 25 could be rated as good risks and only 36 others as fair risks. The procedures attempted were curative in 86 cases and palliative in 16. In three gynecologic cases radium was applied, in all upon an unconfirmed and later disproved diagnosis of malignancy of the cervix; these three patients had pre-existing infections of the cervix and uterus which were fanned into fresh activity by the radiation and which, directly or indirectly, were the cause of death. In five cases operations were done which were either unrelated to the chief pathologic condition or were of questionable wisdom, such as incision and drainage in an infection of the dangerous area of the face.

Here, as in any study of mortalities, the time element plays an enormously important part, though we shall not be so bold as to say how many patients could have been saved if they had been seen earlier. Some diseases such as carcinoma of the liver or of the gallbladder run so brief a course that the outlook is utterly hopeless, while the onset of carcinoma of the stomach is in many cases so insidious and so treacherous that the situation is little better. But when malignancy attacks such visible, accessible regions as the face or the breast it would seem that patients should not die of it when medical aid is so readily available. In such conditions as appendicitis, intestinal obstruction and the catastrophes of peptic ulcer the mortality is in direct proportion to the time at which treatment is instituted, and we may fairly say that the great majority of these patients could have been saved if they had sought aid earlier. A few of them died because their physicians procrastinated before they were admitted or because the hospital staff failed to act promptly after they had been admitted.

Another question arises in this connection, the justification for the type of surgery which can better be described as a premature postmortem rather than as an operation. In a fair number of cases surgery was withheld because the patient's condition seemed hopeless. Most of the time that surmise was probably correct, but sometimes it seemed to us that it was not. Every surgeon has literally dragged back from the gates of death individuals behind whom those gates already seemed to have closed and the decision not to operate in a seemingly hopeless case must always be made on the merits of the individual case and then with extreme caution. Such conditions as acute appendicitis, visceral ruptures, and intestinal obstruction can be benefited only by surgery, and in our opinion the risk of the disease is sufficiently great to warrant the risk of surgery whenever the patient is seen and however poor his condition may be. A surgeon has no right to refrain from surgery merely for the sake of his personal statistics, unpleasant as it may be to lose a patient on the operating table. That is what Lincoln Davis calls operating for a batting average.

A very important consideration is the matter of correctness of diagnosis, and from that standpoint it is worth looking at these cases in some detail. The diagnosis was missed 24 times in the 119 cases of malignant disease, roughly 20 per cent, though in not a single instance do we feel that if it had been made correctly the final outcome would have been altered to any degree. Quite aside from the advanced state of their disease, these patients had everything else against them. In the 21 patients with carcinoma of the stomach, for instance, six had cardiac and two nephritic disease, two were diabetics, one had pellagra, and in one case the malignancy had ruptured into the peritoneal cavity. In the eight cases of carcinoma of the breast the malignancy was recurrent in two and bilateral in one, and metastases were present in all; one patient in this group had a pathologic fracture of the femur. Rupture had occurred in two of the eight cases of carcinoma of the large bowel and in two of the others complete obstruction was present. One patient with carcinoma of the rectum also had a ruptured bowel. Obviously there is little that can be done for patients in this condition. Furthermore, when they come to the hospital in the final stages of their disease even the most astute of clinicians can scarcely unravel the tangled skein and determine which symptoms and findings are characteristic of the original malignancy and which are the terminal manifestations of all malignancy.

The errors in this group follow: Two cases of genito-urinary carcinoma were diagnosed as carcinoma of the stomach and cirrhosis of the liver. Six cases of carcinoma of the pancreas were diagnosed as carcinoma of the stomach (twice), sarcoma of the mesentery, carcinoma of the common duct, neoplasm of undetermined origin, and cardiac disease. Two cases of carcinoma of the stomach were mistaken for cardiac disease. The four cases of carcinoma of the gallbladder were diagnosed as carcinoma of the stomach (twice), carcinoma of the pancreas, and cholecystitis. The four cases of carcinoma of the liver were diagnosed as cardiac disease (twice), cirrhosis of the liver and carcinoma of the gallbladder. The two cases of carcinoma of the bile ducts were diagnosed as cholecystitis and carcinoma of the pancreas. The two cases of carcinoma of the esophagus were diagnosed as tuberculosis and phlebitis. One case of carcinoma of the rectum was diagnosed as carcinoma of the sigmoid, the case of carcinoma of the inguinal region was considered elephantiasis, one case of carcinoma of the bronchus was considered a mediastinal tumor, and three cases of carcinoma of the lung were diagnosed as cardiac disease, pneumonia and tuberculosis. The incorrect diagnosis, as we have said, made no difference in any of these cases, but pulmonary and bronchial malignancy is no longer the hopeless condition it was, and we do believe that more care and attention should be devoted to this type of disease, in the hope of finding the occasional case amenable to surgery. Neither case of hypernephroma was diagnosed in life, though at autopsy the pathologist in one case very cleverly made the diagnosis before the body was opened from gross observation of the skin metastases.

In the non-malignant group we find that in four cases of acute appendicitis operation was not done because the diagnosis was mistaken. In one case of supposed arachnoidism the history and findings pointed only to that condition and no possible blame can be attached to the clinicians who missed the diagnosis. In the case diagnosed as carcinoma of the rectum the story was confusing. But there seems no reason for confusion in the case diagnosed as typhoid or malaria, and it is hard to understand why operation was not done promptly in a patient supposed to have a tubal abortion. These four errors were fatal ones.

Acute appendicitis is one of the conditions already mentioned which has been studied in detail by members of our Department. In various papers analyzing 2715 cases, Maes, Boyce and McFetridge have pointed out, as many other writers have done, the extreme gravity of this condition in youth, and also, as not so many writers have done, its very serious aspects in adults over 40 and in negroes. It is significant then, that six of the 20 patients autopsied for this disease were under 12 and four were over 40 years of age, and that 12 of them were negroes. That eight of the nine patients whose histories were definite on this point had taken purgatives is a state of affairs all too familiar to us all. Special mention should be made of the case of appendicitis in which operation was not done because the condition was supposed to be malaria or typhoid fever. This diagnostic error was thoroughly studied by Copland and Miangolarra. In a three-year period at Charity Hospital they found that 43 of 854 patients with malaria presented an abdominal syndrome resembling appendicitis, and that in 12 of these cases operation was done on the mistaken diagnosis. In 10,818 cases of appendicitis they found malaria present in 0.11 per cent. They emphasize the wisdom, if a differential diagnosis cannot be made promptly, of resorting to operation in malaria rather than taking the risk, as was done here with fatal consequences, of overlooking a case of acute appendicitis.

Four of the eight benign strictures of the rectum were diagnosed as carcinoma. Today the fact that seven of the eight patients were negro females, that two of them had associated fistulae, and that two others had pellagra would point directly to the diagnosis of lymphogranuloma inguinale. But these autopsies were done in 1933, and it was not until the following year that Lichtenstein began to study this disease in Charity Hospital. The diagnoses elsewhere would probably have been just as incorrect, for the Frei test was then in general use in only a few institutions.

Of the 17 peptic ulcers only one represented elective surgery. Two were bleeding ulcers, 13 were ruptured and in one case there was complete pyloric obstruction. The diagnosis was missed in five cases, being variously considered alcoholism (with perfect justice), tuberculosis, acute pancreatitis, ruptured gallbladder and carcinoma of the stomach. The last mentioned patient was operated on, the others were not, the error in diagnosis being fatal, but it is hard to see why acute pancreatitis and rupture of the gallbladder should not have been considered surgical emergencies. Maes, in a recent study of 107 deaths from peptic ulcer in Charity Hospital, has pointed out that only in 17 cases did the fatalities follow surgery which could in any sense be called elective. The remainder were accounted for by the catastrophes of ulcer, and two-thirds of the patients had been treated medically or actually were in the hospital undergoing treatment when the fatal accident occurred. It is worth commenting on that much the same situation holds in this postmortem material, and Maes' point is well taken, that the medical man who treats patients with ulcers to the stage of catastrophe ought to share with the surgeon who tries to remedy the situation the onus of what has happened.

There were four fatal errors in the 12 cases of intestinal obstruction. One case was diagnosed as stricture of the esophagus, one as pneumonia, one as old ruptured ulcer, and the fourth patient developed his obstruction after an operation for cataracts and proved again the sad truth that the most unsafe place in the world to develop the symptoms of one disease is in the hospital under treatment for another disease. The diagnosis was missed in all four cases of liver abscess, and the error was probably fatal in the two cases of amebic abscess. The diagnosis of pneumonia was made in a 15 months old child, and the other diagnoses included rectal stricture (for no discernible reason), subphrenic abscess and cholecystitis. In the seven bone cases the diagnosis was missed in one, a suppurative arthritis being mistaken for a malignant tumor, with fatal consequences. In the three cases of lung abscess the diagnosis was missed twice, being considered whooping cough and pneumonia in a five months old child and pulmonary malignancy in the other patient. Both patients were poor risks and the diagnostic error probably made no difference, but here, as in malignancy of the lung, we feel that more earnest diagnostic efforts should result in a higher proportion of successful therapeutic results.

The diagnosis was missed in both cases of peritonitis, one being considered carcinoma of the pelvis and enterostomy being done in the other on a diagnosis of ruptured viscus. The four cases of tuberculosis were variously considered carcinoma of the stomach, malignancy of the spine, rectal fistula and pulmonary disease. In the group of miscellaneous infections a carbuncle was mistaken for malignancy and biopsy was done, with most unhappy results. In the group of miscellaneous diseases the diagnosis of Addison's disease was missed, the error making no difference in the outcome of the case.

In 96 cases of non-malignant disease, then, the diagnosis was missed 35 times, roughly 36 percent, in 17 with fatal consequences, while in 10 others a correct diagnosis might have altered the fatal outcome, though of this no one can be certain after the event. The gynecologic cases were all diagnosed correctly, and we shall not comment on them, except to stress the unwisdom of operating on pelvic disease that has not been properly cooled. The genito-urinary cases were also all diagnosed correctly. It might be mentioned that most of these patients were very poor risks, most of them suffering from extravasation of urine associated with ascending infections.

This study proves again that the unusual is really rather frequent. In the 309 cases, for instance, are three cases of hypernephroma (one of which was discovered accidentally at autopsy and had nothing to do with the fatal outcome); one case of paratyphoid osteomyelitis, only 16 of which Veal found in the literature up to 1933; two cases of carcinoma of the bile ducts, less than 100 of which Lampert found on record up to 1933; one case of melanosarcoma of the rectum, less than 100 of which Boyce found recorded up to 1934; four cases of carcinoma of the liver and four of carcinoma of the gallbladder, both infrequent if not actually unusual conditions; and a case of Brodie's abscess and the sclerosing osteomyelitis of Garré in the same patient.

Worthy of mention are the four instances of evisceration (following operations for uterine fibroids, ectopic pregnancy, carcinoma of the stomach and intestinal obstruction). This condition was studied in detail in 1934 by Maes, Boyce and McFetridge, who analyzed 44 cases from the records of Charity Hospital. Their conclusion was that this is a complication in which the outcome depends more upon the condition of the patient and upon his disease than upon the accident itself; indeed, they are inclined to regard the accident as due frequently to the patient's condition. Their reasoning seems justified in the cases in this series, in all of which the patients were poor risks.

It is characteristic that the five strictures of the esophagus occurred in negroes, four of them in children under three years of age, one of whom died from a rupture of the esophagus immediately following dilatation; her gastrostomy had been closed and she was considered well on the way to recovery when this accident, apparently a preventable one, cost her life.

It is typical that both thyroid deaths occurred in negroes. In a study of 662 cases running from January 1, 1927, to July 1, 1936, Maes, Boyce and McFetridge have shown that while the mortality for the whole series is 5.74 per cent, the mortality for the negro patients is 7.6 per cent against 4.1 per cent for the white patients. More striking is the difference in toxic disease, 11.3 per cent for the negroes against 6.85 per cent for the whites, and in males, 26.5 per cent for negro males against 5.1 per cent for while males.

The four cases of carcinoma of the liver characteristically occurred in negro males, in whom, in a study of 28 cases, Boyce and McFetridge have pointed out that the disease is most frequent. The authors comment in this study on the very brief course of this disease, no case in their series exceeding five months, and they point out that antemortem diagnosis, which was made in only two of their cases, is rarely made except in Eastern clinics, where the incidence is relatively high. These same authors, in an analysis of 25 cases of carcinoma of the gallbladder, call attention to the high incidence of this disease in negroes. In their series 11 cases occurred in negroes (as did all the cases in this postmortem series) although the relative racial incidence of gallbladder disease of the non-malignant variety is not more than 1 to 6. Twelve of the 15 cases of gangrene of the extremities studied in this postmortem material occurred in negroes, and this again is typical, as Veal points out in an analysis of 171 cases. This race exhibits this disease in its extreme manifestations and the mortality of operation is always very high.

Deadman, in a study of autopsy material, says that unexpected postmortem findings would not usually be unexpected if the cases were properly studied. That point this present study corroborates. Cabot says that diseases which kill so quickly that the period of observation is brief and the history is faulty will always show a high percentage of errors. That point this study also proves. It is generally granted that relatively or absolutely rare diseases are less likely to be diagnosed correctly antemortem than more common diseases, but it is not so generally realized that more common diseases, as this analysis shows, are also likely to be overlooked, with a far higher percentage of fatal consequences. That more care in details would result in more exact diagnoses and better surgical results there can be no doubt, and an analysis of postmortem material such as this brings home that fact, we would say, as nothing else possibly can.

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## CHEMICAL BURNS OF THE EYE*

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A chemical burn of the eye is one of the most serious injuries with which the ophthalmologist has to contend. They cause more damage and many more complications than either the thermal or the various light burns because of their destructive, as well as their chemical affinity and combination with the various tissues in the eye. However, you may have a combination of the thermal with the chemical as they may enter the eye in a heated condition or may generate heat, such as quicklime which is slaked by the tears. The damage done by chemical burns depends upon the amount reaching the eye, its strength, whether under pressure, heated, length of time it is in contact with the eye and lastly the peculiarity of that particular chemical. In the eye the cornea being transparent is a more highly complex and specialized tissue than the conjunctiva, and it therefore suffers a loss of this transparency when scar tissue is formed in repair. The denseness of this scar tissue depends upon the depth of the destruction and should this descend to Descemets membrane, light transmission is an impossibility.

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I will divide the more common chemical burns into the acid and alkali groups for description.

Acid burns are pathologically different from the alkalies in that the conjunctival and corneal albumin is precipitated, forming an eschar, which limits the action of the acid on the underlying tissues. Here the cornea looks dull and opaque in mild cases, but in the worst ones it is as white as porcelain, may become necrotic, herniate or rupture with resultant panophthalmitis or be replaced by a dense roughened scar, making a hopelessly blind eye. The most common acid burns are: sulphuric, hydrochloric, carbolic, nitric and acetic.

Alkali burns do not form an eschar to limit their destruction and hence penetrate into the anterior chamber and deeper structures of the eye. There is seen lid edema, chemosis of the conjunctiva and clouding of the cornea which is usually not very dense, and later complications such as iridocyclitis and secondary glaucoma. These cases appear not severe and seem to improve, but after a few days the cornea sloughs and may result in phthisis bulbi, panophthalmitis or ruptured cornea, this latter if intraocular tension has increased. If the cornea is anesthetic following these burns, our prognosis should be guarded and very grave when ammonia is the agent, according to Denig and Wagenmann.

Ammonia is regarded as the most serious of all chemical burns. The cloudiness is never as dense as seen with lye or lime burns and its peculiarity is that the eye seems to improve for possibly a week, then the cornea literally melts away, panophthalmitis sets in and the eye is lost. According to Thies, Wagenmann and Pilcher, ammonia acts as a base on living and dead albumin, forming the soluble alkali albuminates which possess great toxic power. This chemical has great affinity for water and because of this water extracting power, the alkali penetrates into the deeper structures of the eye, causing more damage and necrosis. Thies and Guillory state that ammonia gas is even worse and that the eye is invariably lost. Even spirits of ammonia, the common household remedy containing only 10 per cent ammonia, if allowed to come in contact with the eye can cause a cataract and even destroy it, as reported in a case by Abramovicz.

In lime burns, according to Guillory and Fuchs, the corneal opacity is due to a chemical combination of lime with the cornea forming calcium albuminate and calcium carbonate. As the affinity of lime for albumin is slight as compared with its affinity for carbonic acid, calcium carbonate forms the major part of the opacity. The gradual increase in the opacity is due to the further conversion of the albuminate into the carbonate by the carbonic acid of the tissues and the air. Hence the incrustation, according to Barkans, is mainly calcium carbonate.

The action of lye resembles ammonia. The burn is intensive and repair late. Yoshimoto performed experiments on rabbits' eyes using acids and alkalies in different dilutions. The order of chemicals used in degree of severity was: soda lye, hydrochloric acid, sulphuric acid, nitric acid, acetic acid and ammonium hydroxide.

## TREATMENT

In the treatment of chemical burns there is nothing specific, but much can be done early to limit the destruction. It is here that I wish to make a plea to the general practitioners, who generally see these cases first and often hours before the ophthalmologist, to equip himself for such emergencies and render the proper first aid. Underhill, of Yale University, in urging first aid treatment in industrial plants, recommended copious flushing of the eye with tap water and contended that the damage done by either the acid or the alkali was immediate and that neutralizing agents were of little value. Certainly these ideas have permeated industry as well as the medical profession as the only first aid measure. Surely the introduction of strong alkalies to neutralize acids and vice versa only adds fuel to the fire and causes even more destruction, but the use of weak neutralizing agents after removal of the offending chemical will save and preserve many a useful eye.

Copious irrigations of the eye, with the lids everted so as to wash all folds of the conjunctiva, with ordinary tap water is of first importance and the mainstay of first aid treatment. Remove, if necessary with swabs of cotton, any remaining particles of the chemical; especially is this true in lime, lye and phenol burns. Davidson, after experiments on rats, stated, and Pilcher is of the same opinion, that only after the above procedure should neutralization be attempted.

We all should have litmus paper in our office which readily determines for us whether we are dealing with an acid or an alkali. If an acid, wash the eye with 5 to 10 per cent solution of bicarbonate of soda. If an alkali, wash the eye with 1 per cent acetic acid. It may be found necessary to instill a few drops of 4 per cent solution of cocaine to accomplish the procedure thoroughly. Then introduce a bland oil such as olive or castor oil into the eye, apply a light bandage and refer to an oculist for furthe treatment and observation. For the first 24 hours cold applications are very gratifying after which warm seem to do more good. Atropine and the like should be used with caution and Stieren and Lieb believe it contraindicated in ammonia burns because of the danger of secondary glaucoma. Bentzen showed a definite increase in tension with ammonia burns in his experiments with animals. Cross suggests and recommends the use of glycerite of tannic acid for alkali burns. In his experience the drug stopped the prolonged action of the chemical and it should be used.

In the teatment of corneal opacity, Barkans recommends the use of freshly prepared, neutral solution of ammonium tartrate; this solution *must* be neutral. The eye should be cocainized and then flooded with 4 per cent solution neutral ammonium tartrate for half hour twice daily, increasing strength to 10 or 20 per cent gradually. Length of time elapsed did not seem to have any bearing on the end result. Thies, Siegist and Pilcher recommend puncture or paracentesis of the anterior chamber to remove any ammonia present in the aqueous. Middleton states that ammonia will osmose into the aqueous rapidly and if you do not drain the aqueous chamber soon after the injury, the aqueous will be converted into an ammonia solution which will invariably destroy the iris and vitreous, also the eye.

Denig and Roth believe that oral mucous graft offers the best treatment if the greatest part of the conjunctiva has sloughed away or the cornea shows loss of epithelium and is insensitive, in which case the plastic operation should be done before the fifth day.

In preventing symblepharon, supplying the conjunctiva with oil, free movements of the lids and eyeball and separating the adhesions that may form daily, usually gives good results. Stanford recommends the inside of an egg shell placed between the globe and lids. Hurst turns the lids placing two or three sutures through the retrotarsal folds, then carried to the forehead for the upper lid and to the cheek for the lower lid, where they are held by adhesive tape until burned conjunctiva is healed. Thies makes no attempt to prevent symblepharon as he believes that impossible. He merely uses a sterile ointment and a bandage. When healing is complete and at a standstill he operates.

### SUMMARY

1. Copious irrigations with water are better than chemical neutralization.

2. Following irrigation neutralize with 1 per cent acetic acid for alkalies and 5 to 10 per cent bicarbonate of soda for acids, will save many eyes.

3. There is no specific treatment for chemical burns of the eye.

4. Prognosis should be guarded; an anesthetic cornea is grave.

5. Glycerite of tannic acid should be tried in alkali burns.

6. Neutral solutions of ammonium tartrate are of value in clearing corneal opacities after lime burns.

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Gifford Ocular Therapeutics.

### DISCUSSION

Dr. W. B. Clark (New Orleans): I think Dr. Moss is to be commended for presenting to us such a timely subject, but I am afraid the men he wanted to hear this are not here this morning. Dr. Sellers has just said that ninety-five per cent of you do obstetrics. I see some urologists and quite a number of eye, ear, nose and throat men around, so I am afraid there were very few industrial surgeons and general practitioners here to hear this paper.

In my opinion, what the man does who sees the case first has a lot to do with the result that you get in treating a chemical burn of the eye.

The point Dr. Moss made using water to irrigate the eye rather than attempting to neutralize the chemical is a point well taken. Water, being a universal solvent, will neutralize by dilution most acids or alkalis. Valuable time and vision can be saved by using water copiously.

I recall, that just after I had graduated from medical school, I taught first aid for the Long Lines Department of the American Telephone Company, teaching the construction gangs how to administer first aid to their injuries. The talks were prepared by the medical staff in New York and I remember they listed the commonly encountered alkalis and acids in detail, and gave antidotes for each, in case of burns to the eye. I know now how much better it would have been if I had taught these men that when they got an alkali or acid in their eye, to stick their head in a keg of water and open the eye forcibly so that the chemical could be diluted and washed out.

There are no other points in the treatment that I might bring out that Dr. Moss has not mentioned, but I will attempt to elaborate on some of the points he made. First, you irrigate with water. Then one of the mild anesthetics that we use in ophthalmology, should be instilled in the eye. This helps a great deal in relieving the pain and associated blepharospasm. If you anesthetize the eye immediately after washing it out with water, you can invert the lid much easier and cause the patient much less discomfort in making your examination and using the neutralizing agent. Some of us may not always have a neutralizing agent handy, and this relief of pain helps to satisfy the patient until it can be procured.

Then, of course, you will instill your ointment or oil. It does not matter whether you use olive oil, castor oil or mineral oil. Sometimes you may have to use cylinder oil from a truck, or ordinary white vaseline. It is the lubrication that keeps the conjunctival surfaces of the lid and the conjunctival surfaces of the globe from sticking together resulting in eschar and symblepharon.

Back to the choice of anesthetic to use. I prefer to use one-half per cent pantocain solution because it is a neutral solution. Gifford and others have found that solutions when instilled in the eye, that if they are near neutral or slightly alkaline, are less irritating. Pantocain is slightly on the acid side. Cocain and butyn and most of the others are distinctly acid and cause a good deal more burning.

For the lubricant, we use one per cent holocain and adrenalin ointment. We use irrigations following the burn every hour, and then following that we use the ointment. We irrigate freely and copiously, because it relieves the eye of the accumulating mucus and products of inflammation. The discomfort following burn is very severe, and the strings of mucus that accumulate in the conjunctival sac, and roll over the denuded cornea cause a great deal of pain. So we use copious irrigations every hour, followed by the application of this ointment. The holocain keeps the eye more or less anesthetized and helps relieve the pain, the adrenalin helps keep down congestion.

Of course, these drugs are in more or less constant contact with the eye, being suspended in an ointment base and you do not get the marked secondary congestion that you get from a drop of adrenalin, and the ointment base helps to keep the lids from sticking to the globe.

For the irrigating solution, in our private work we prefer the use of one of the mildly alkaline type. And I think the thing we should suggest to the general practitioner is something that is readily obtainable, and a simple solution that is easy to make. You can find the following ingredients in almost any negro hut or fisherman's shack. Take a quart of boiled water and two teaspoonsful of ordinary table salt and one teaspoonful of cooking soda. This makes a non-irritating solution that is mildly alkaline. It can be made almost anywhere, and the eye can be kept safely clean with it.

As to the after treatment, atropine, and paracentesis should be left to the ophthalmologist, because he is the one who should say whether a patient should use atropine and decide if paracentesis is indicated.

The point Dr. Moss has made and that I want to emphasize is that we do want the general practitioners to give particular attention to keeping these cases clean until they are sent to the ophthalmologist, because the ophthalmologist can give him back a much better eye if the case is properly cared for in the first twenty-four hours.

Dr. T. J. Dimitry (New Orleans): Lime, lye burns and acid burns of the eye in effect are "hellish." They commonly destroy it and the lids grow to the remains of what was an eye. Because of these effects brought about by these hydrophilic agents, I teach the advantages of plenty of water immediately applied and I avoid stressing the antidotes. They are usually not at hand, and, when obtained, their virtue is limited.

I always emphasize, knowing that the eye is usually destroyed, that the lids should be prevented from growing to the eye, so that, as time passes, an artificial eye can be worn. With this in mind, I get busy early and I do not wait for the formation of the symblepharon. The desire is to prevent it. I teach a method of obtaining this from the ovum of the chick and the milk of the cow. Soon after the accident, the ovum of the chicken is sectioned and inserted over the eye and under the lids. Milk is used parenterally to overcome infection and to produce a better healing.

The procedure is to cocainize the eye and break up synechias that are being formed. A laying hen provides the ovum. A large one is usually selected, and, after cutting it in two, a section is inserted on the eye under the lid. When it was first used, the benefit obtained was thought to be physical, namely, keeping the lids protected from growing to the eye by a definite type of membrane. Afterwards, it was thought to have a nutritional effect. It is easily held in position by its own adhesive power. Stitches are not used. The albuminous and sulphur contents of the ovum are helpful. The cow's milk is used as a foreign protein.

This procedure has served me very well and it is a simple procedure.

Dr. M. Earle Brown (New Orleans): The importance of rendering first aid treatment in chemical burns of the eye cannot be too strongly emphasized, constituting as they do a serious ocular hazard, generally resulting in blindness.

The neutral salt of ammonia tartrate, so necessary in the treatment of lime and cement burns of the eye, is difficult to procure and must be freshly prepared.

Many years ago I kept twenty-four grains of the neutral salt of ammonia tartrate in a sterile bottle and another bottle of one-half ounce of sterile water in the instrument trays in the outdoor clinics of the Charity Hospital and the Eye, Ear, Nose and Throat Hospital. The pain from lime and cement burns of the eye is most intense and should be relieved by instillation of butyn, two per cent solution, while an assistant prepares the neutral salt of ammonia tartrate.

During February, 1929, I treated a young man (Mr. R. G.) for a cement burn of both eyes. When the patient entered my office his entire face was covered with cement, both eyes were closed, and upon opening them the conjunctival sacs were filled with cement. The cornea of each eye was cloudy and the conjunctiva had already commenced to slough. The patient suffered excruciating pain. The greater part of the cement was removed, butyn instilled and freshly prepared neutral salt of ammonia tartrate, ten per cent solution, was instilled into each eye. After a period of twenty or thirty minutes, the patient was removed to the Eye, Ear, Nose and Throat Hospital and routine treatment was instituted.

The opacity of the right eye cleared up nicely, while the left eye retained an opacity on the nasal side about one-third of the cornea. The conjunctiva sloughed and posterior symblepharon developed. During May of the same year, I operated and grafted a triangular piece of mucous membrane from the patient's penile foreskin, completely curing the symblepharon. When finally discharged, the patient enjoyed normal vision in the right eye and 27/70 in the left eye.

# THE INTRODUCTION OF A NEW VEGETABLE CONCENTRATE IN THE TREATMENT OF DIABETES MELLITUS*

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When we speak of diabetes, we are apt to cover a very broad field, because there are numerous classifications. However, I will not enter into these various classifications, as every practitioner should be familiar with them.

For convenience I recognize two types of true hyperglycemia according to the influence upon the pancreas, whether mainly functional or organic. Functional diabetes mellitus is the type met with in middle age or over, resulting from pancreatic stress due to chronic digestive disorders. True pancreatic disease with anatomic invasion of the endocrine structure of the pancreas, hypoplasia, atrophy, or fibrosis, apparently is the type more frequently met with in young people. It is the adult type which we meet with very frequently in practice. While there is no definite age demarcation between these two conditions, still there are wide differences in their prognosis and therapeutic responses, just as there are between the functional and organic types of any of the other endocrinopathies.

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In 1922, when Banting and Best made the announcement of insulin, this accomplishment was indeed a Godsend to mankind and an imperishable tribute to the men who made it possible, however, we must admit that insulin therapy has definite limitations and certain disadvantages, which we know is only of temporary value. It is liable to produce accessory effects which render its use in different cases a delicate matter. It is a medication which must be administered and carefully watched by a physician. As time goes on we are becoming increasingly aware that insulin is not quite the whole thing. It does not represent the maximum therapeutic hope which can be offered to the diabetic, and to forget its limitations is to deny the greatest degree of succor to many sufferers. The use of insulin has not lowered the mortality from this disease, but instead the death rate has been increased ever since the introduction of insulin.

R. H. Major, in his article "Eight Years of Insulin", compares the death rate from diabetes mellitus in the United States for 1919, three years before the introduction of insulin, with the rate in 1925, three years later. The figures were 14.9 and 16.9 per 100,000 respectively. The ratio of diabetic deaths to total deaths in Massachusetts shows that in 1920 it was 0.86, while in 1925 it was 1.56, nearly twice as high. What do these figures mean? Either that insulin has failed in the promise of checking diabetes mortality, or that we, as physicians, have failed to employ it intelligently. This is no disparagement to insulin, but rather an attempt to measure the borders of its vast domain.

Insulin is not quite a panacea for diabetes, so it seems timely to complain against the obliteraton of anything which might act as a substitute. The therapy of diabetes includes more than insulin for the very good reason that the pathology of diabetes involves more than Langerhansan defects. Therefore, the physician's ideal should be to have at his disposal a medicament, which can produce in hyperglycemic and diabetic patients the fundamental action of the insulin, but with none of its secondary or accessory effects, less dangerous to apply and easier to manipulate.

This was the beginning of my study of a possible vegetable "insulinoide" that might exist somewhere in the vegetable kingdom producing a hypoglycemic principle either in the form of a "glucokinine hormone" or a chemico-physiologic stimulant to the abnormally defective pancreas, when orally administered in concentrated form.

Researches have been made and are still under way concerning various vegetable extracts, which may have the property. Since 1923 work along this line has been done by Collip, Dublin, Corbitt, Eisler, Protheim, Skikinani, Kaufman, Simola, and Donard, with various extracts of yeast, dry beans, bark, and leaves of Texas cuspidata, pinus densiflora, whortleberry, shell of acorns, pea pods, sambal fruit, cotton plant roots, husks of oats, rhubarb leaves, germinated barley, and others. None of these have ever come to light so far for practical application and none have been able to replace insulin even in mild cases. Therefore, there should be no limit to further investigation into the vegetable world for something better and more effective in a general way.

During recent investigations and researches along this line, I have found a hypoglycemic virtue in the common wild thistle (specie carduus) from which a concentrate is made from the stalks and leaves by a special dehydration process involving the constant recirculation of inert gases under low temperature, free oxygen being effectively excluded, thereby preserving the vitamins. The finished product reveals an impalpable powder made under pressure by rapidly rotating hammers in a mill to insure the highest degree of cellular fracture which must be done correctly to obtain the maximum therapeutic effect through necessary absorbtion by the gastrointestinal tract.

The dosage of this finished product is from two to four grams three times daily in capsule or powder form half hour before meals. To this concentrate I have given the name "cardellyn". Just how it acts on carbohydrate metabolism is not yet exactly known. Whether it contains a possible vegetable "insulinoide" or other active principle has yet to be found through further researches. What has been gathered so far from experiments made upon dogs, is that it possesses physiologic stimulant properties both to the pancreas and the liver through the possible activation of the duodenal hormone, secretin. It was found that in very large doses it produced in animals an increased flow of saliva and in still larger doses emetic properties similar to ipecac, but did not produce any gastrointestinal irritation, and no irritation to mucus membranes in the lower bowel.

Experiments carried on during the past two years have definitely established its absolute harmlessness in therapeutic doses on the human system. Dogs fed on very large quantities of the concentrate over a period of one year did not show any evidence of kidney irritation through its excretion.

Favorable results obtained in diabetic cases of lowering glycemia were most probably due to the activation of the glandular functions involving the production of more secretin, which is the initiator of the pancreatic function, the stimulation of the glycogenic function of the liver, plus a possible "insulinoide", and the vitamins A and B and especially vitamin B, which according to the family of plant, it contains in abundance. By the whole process the deficient pancreas is thereby made to produce its own insulin, provided the islands of Langerhans are not totally deficient. If such be the case there will be no need of supplying insulin by means of a hypodermic and the patient has no need for insulin medication.

Let me add that while we physicians are indebted very greatly to the discoverers of insulin, which must be used in emergencies, let me make a plea not to be too hasty on the hypodermic in every case of diabetes with low tolerance, until it can be proved satisfactorily that such a case is of the advanced organic type and therefore must have insulin.

The use of insulin has almost become universal because no stubstitute has been found on a high maintenance diet, but if we stop to analyze its possible harm to patients, we would do well to select our cases and give insulin only to insulin needy patients. Insulin does not control the diabetic symptoms such as subnormal weight, polyphagia, and polyuria. The marked degeneration of the liver, and the extreme arteriosclerosis developed in dogs on long insulin management indicates either diabetic processes not controlled by insulin, chronic toxic action of insulin itself, or such toxic action of the other substances in the insulin mixture.

Chemical analysis of "cardellyn" show the presence of alkaline mineral salts in abundance which in itself is beneficial in correcting the tendency to acidosis, by furnishing the alkali which prevents the ketone acids from drawing upon the fixed "alkali reserve" of the body and thereby preventing a hyperketonuria.

Cardellyn has successfully controlled 100 per cent of functional diabetes, returning blood sugar to normal or near normal on a liberal diet. In cases of atrophy, and fibrosis of the pancreas, the true organic type, cardellyn will always fail and therefore insulin will become necessary.

## CONCLUSION

Functional diabetes deserves to be considered from a wider point of view than that of pancreas alone. One of the most striking facts verified clinically by the patient regarding the use of cardellyn, is precisely the rapid and striking effect on the improvement of the patient's general condition.

In diabetic patients the improvement coincides with the lowering of glycemia, the disappearance of urinary sugar, and the diminution of the signs and symptoms of diabetes.

The diabetes of children being evidently a more definite trophic or hypoplastic disease, efforts to re-establish the function of the atrophied cells practically always fail and therefore insulin becomes imperative.

The effects of cardellyn produce a long lasting building up of tolerance and a reduction of blood sugar through a general stimulation of the whole digestive mechanism. It does not however lower the normal blood sugar in normal non-diabetic individuals. Cardellyn can also be used as a therapeutic test for true pancreatic disease.

The clinical and laboratory results obtained thus far become a nucleus for a further exhaustive study of this variety of plant to determine the possible existence of an "insulinoide".

However, whatever active principle is found, I would not recommend the use of an extract in preference to the whole concentrate because the whole concentrate contains the added alkalinization which is so very important to the diabetic. That numerous cases who had insulin or taking insulin had been made to discard their hypodermic when placed on cardellyn. The work is only begun. This report of over 50 cases is only preliminary to that which is to follow and I am in hopes of being able to give in the near future a more extensive report on the work to be accomplished.

## DISCUSSION

Dr. Allan Eustis (New Orleans): I have been very much interested in Dr. Bertucci's work, and I want to congratulate him upon the modesty of his claims. We all understand that this is simply a preliminary report.

He brings out the fact that there are several types of diabetes. Formerly, we thought of diabetes as due only to degeneration of the islands of Langerhans. Now, as we are making more of a study of diabetes, we frequently find patients showing a type without any demonstrable lesions in the islands of Langerhans, and so, are coming to the conclusion that there is some other factor besides degeneration of the cells in the islets of Langerhans. I want to call attention to the fact that severe diabetes can be caused by lesions in the hypophysis, and this substance of Dr. Bertucci may act through the central nervous system. Only recently I saw such a case. A man who had never had any sugar in his urine, and with a normal blood sugar, had a small cerebral hemorrhage, which evidently involved the hypophysis. Ten per cent of sugar appeared in the urine and 446 mg. in the blood. He has since developed a moderately severe diabetes and requires 20 to 25 units of insulin in a day.

Dr. Robert A. Strong (New Orleans): Ever since Banting's exposure of the islands of Langerhans and the work of Dr. Colla which was largely responsible for the production of insulin, I have always been interested in reading from time to time of the work done with insulin substitutes, which, of course, up to now have encountered many difficulties. I am glad to see Dr. Bertucci has given an interesting investigation, which we are all willing to look forward to with a great deal of interest and hope as we would like to go beyond insulin, although when insulin was given to us, it was an enormous step forward.

Dr. A. A. Herold (Shreveport): As far back as one can remember, there have been claims for various remedies that lower the blood sugar. Amang them, I might mention myrtillin, which Dr. Bertucci has referred to; it is the ground leaf of a certain species of blueberry, which has been used by the peasants of Hungary for hundreds of years as a cure for polyuria; a Hungarian chemist brought it to Dr. Fredrick M. Allen's attention and he used it with some success. Now, Squibb has it on the market, but it is very rarely used. There is a capsule, a supply of which will be furnished any physician, from which some claim good results, but it is really a useless preparation and I am simply referring to it to condemn it. Then there is the German product, synthalin, which definitely lowers blood sugar, but being a guanidine derivative, it has the disadvantage that it is known to be likely to produce serious gastrointestinal disturbances. I am not doubting Dr. Bertucci's findings, as many other products will often do what he claims for this preparation. He showed us his good results; I would like to ask him to tell us, in closing, whether or not he did have failures in some of his cases.

In regard to pathology, to which Dr. Eustis referred, a great deal has been written about pathologic findings in diabetic patients who have died from trauma independent of their (severe) diabetes and no pathology was found in the pancreas, the islets of Langershans appearing normal. I lean more to the view that much of diabetes is due to faulty liver function, failure of the glycogenic portion properly to store or, as has been suggested, the primary trouble may be in the nervous mechanism controlling this function.

Dr. D. C. Browne (New Orleans): Insulin certainly does not offer an ideal method of handling the diabetes mellitus case, otherwise we would not be going through cycles of trial and error with various vegetable products. Dr. Bertucci's presentation represents another sincere effort to develop a more practical and safe method of treating the diabetes case. I would urge that a more careful study of the pharmacology of this product be made. A striking feature of the charts presented is that in no instance do the blood sugar curves go below the normal. Its action is certainly not insulin-like and I am wondering whether it has any influence on pancreatic function or might not its reported action be related to liver metabolism.

Dr. Emile A. Bertucci (in conclusion): I want to answer Dr. Herold in regard to the synthalin product. It is dangerous to handle. It is one which is synthetically produced and differs from this vegetable concentrate, in that you can give as much of the vegetable concentrate as you desire and will not produce any harmful effects of significance. The animal experiments on dogs as brought out in my paper, has convinced me of the safety of my product.

In regard to the percentage of cases benefited by cardellyn, I want to say that in all cases of children in which I used cardellyn, did not respond, and this I believe was due to true organic disease of the pancreatic cells, which could not possibly be brought back to normal functioning, and therefore insulin became imperative. In cases of the adult type below the age of 40, I had some difficulty in lowering blood sugar, and I seemed to have better success in patients above the age of 40. I claim results in the senile type of diabetes, through the stimulation of the functional processes, where there is a malfunctioning of the pancreas and also of the glycogenic function of the liver, interferring with the proper hormonic balance. I have had 100 per cent success in all cases in which the pancreas was not organically impaired. Cases in this class who had been taking insulin for years as high as 60 units daily, and who had been told by their physicians that they would have to take insulin for the rest of their lives, were taken off insulin and their blood sugar restored to normal.

In answer to Dr. Strong, so far as yeast is concerned, we all know of the presence of vitamin B in yeast, and much talk concerning this vitamin in relation to its action in the therapeusis of diabetes in which there may be a vitamin B deficiency. There is a liquid preparation on the market containing this vitamin, and I personally believe that certain vitamins play an important role in this disease. Cardellyn is rich in vitamin B and it may be one of the agents that is responsible for such marvelous results.

Dr. Brown inquired as to hypoglycemic reactions. Cardellyn given to normal persons will not produce a hypoglycemia. It tends to stabilize blood sugar. I have given it to individulas with normal blood sugar for months and it did not affect it. Therefore there is no danger from hypoglycemic reactions from the use of cardellyn.

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## NEW ORLEANS POST-GRADUATE MEDICAL ASSEMBLY

The plans for the New Orleans Post-Graduate Medical Assembly to be held March 8-11, 1937, are being pushed actively and energetically. The officers are working diligently and faithfully, so that the magnificent scientific program is virtually completed.

A preliminary program has been sent to most of the doctors in the far South. To those who have not by chance received these programs or who have not read them it might be said that the list of speakers is made up of many men distinguished in the medical pofession. Dr. Ralph A. Waters, Professor of Anesthesia at the University of Wisconsin Medical School, will discuss anesthesia. In the ear, nose and throat field the talks will be given by Dr. Albert C. Furstenberg of the University of Michigan Medical School. One of the best known men in gastro-enterology, Dr. Anthony Bassler, will deal with gastro-enterologic subjects. In gynecology Dr. George G. Ward of New York will present several interesting papers. Dr. Russell Cecil, Professor of Medicine at Cornell University Medical College and author of a well known textbook, will present the medical features of disease. He will be joined by Dr. George M. Piersol, Professor of Medicine at the Graduate School of the University of Pennsylvania and an editor of distinguished reputation. The monumental work which has recently appeared in thirteen volumes, "The Cyclopedia of Medicine," was prepared under his editorial supervision. The placing of Dr. Piersol on the program is one of several additions that have been made by the Program Committee.

In neurology Dr. Lewis J. Pollock, Professor of Nervous and Mental Diseases, Northwestern University Medical School, will give instruction in his particular specialty. The Professor of Obstetrics and Gynecology at Cornell University, Ithaca, Dr. H. J. Stander, will be the representative on the program to discuss obstetrical problems. Ophthalmology will be represented by Dr. Clifford B. Walker of the University of Southern California School of Medicine. One of the truly great orthopedic surgeons, Dr. Robert B. Osgood, formerly Professor of Orthopedic Surgery at Harvard, will have several papers on this branch of surgery. Dr. John A. Kolmer, well known for his modification of the Wassermann reaction and the author of several books, will discourse on the relationship of pathology to medicine. In pediatrics Dr. Julius Hess of the University of Illinois College of Medicine and one of the best known pediatricians in the country, will give several talks on the care of the infant.

A representative of the U. S. Public Health Service and National Institute of Health, Dr. Rolla E. Dyer, is extremely well qualified to talk on his subject, preventive medicine. The same may be said of Dr. Eugene P. Pendergrass of the Hospital of the University of Pennsylvania School of Medicine, a delightful talker and an able student of radiology. Dr. William Babcock, Professor of Surgery at Temple University School of Medicine, needs no introduction to the medical profession. The author of one of the outstanding surgical textbooks, he is a man who presents his subject clearly and intelligently. Surgery will be further represented by Dr. Hugh Trout of Roanoke, Virginia, one of the most prominent surgeons of the South, while Dr. Meredith Campbell of New York City will discourse on urologic surgery.

Reviewing this list of speakers it will be difficult indeed to find more perfect representatives of the various divisions of medicine in this country, both as men of renown and teachers of quality. The information and instruction that these men will give will be undoubtedly unequaled by any group during the coming year. These men will present not only formal lectures but will enter into round-table discussions, will take part in symposia and will give clinical demonstrations.

## RESEARCH STUDIES

One of the outstanding research organizations in this country is the Society for Experimental Biology and Medicine. In abstract form are presented in their regular publication a very large number of studies of a research and laboratory nature. By far the great majority of these observations are of rather remote clinical implication and they are not intended for a man who believes only in things practical. However, in perusing the pages of any one of their issues there may be found a not inconsiderable number of problems whose solution gives a distinct clinical lead. Thus for example a paper by Daniels and Everson[1] showed that aspirin increases the excretion of vitamin C. This is of distinct importance clinically because subacute scurvy is by no means uncommon when salicylates have been given to children who have need for this drug. It is obvious that to these children should be given an increased ration of orange juice or tomato juice. Another presentation by Robson[2] shows that testosterone inhibits the oestrus cycle. This observation may be of importance in future years as a method of controlling too frequent menstruation. Incidentally in the study, injected female mice were placed with males and no mating was observed. Here again the implications are obvious.

An interesting research, which has a therapeutic thought, is that of Evans and Bowie[3] who found that in rats either depancreatized or else phloridzinized, cardiac glycogen is not materially affected by either of these two procedures. They believe that heart glycogen is under different control than that of the skeletal muscles. From their observations it may be assumed that glucose by vein is unnecessary in patients with high blood sugar, and possibly in patients with low blood sugar the injection of sugar by vein is of no material value to the heart muscle. In still another research West and Burget[4] found that sorbitol, a non-toxic, very cheap hexahydric alcohol which is rapidly excreted by the kidneys after intravenous injection, has enormous water binding capacity. From these observations it is very easy to deduce that this preparation might easily hold promise of a remarkable diuretic action in patients in whom diuretics are indicated, as in congestive heart failure. A fifth investigation conducted by Lilienfeld, Wright and MacLenathen[5] had to do with the intramuscular injections of ascorbic acid and its excretion in sweat. They showed that this preparation may be given intramuscularly without injury to tissue. It is used by the body tissues when there is ascorbic acid lack. It follows, therefore, that when there is vitamin C deficiency through inability of the gastrointestinal tract properly to absorb cevitamic acid and when the intravenous administration is not practical that vitamin C may be given to the child intramuscularly and with excellent effect.

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[1] Daniels, A. L. and Everson, G. J.: Influence of acetylsalicylic acid (aspirin) on urinary excretion of ascorbic acid, Proc. Soc. Exper. Biol. & Med., 35:20, 1936.

[2] Robson, J. M.: Inhibition of oestrus and of the vaginal response to oestrone by testosterone, loc. cit. p. 49.

[3] Evans, G. and Bowie, M. A. Cardiac glycogen in diabetic animals, loc. cit. p. 68.

[4] West, E. S. and Burget, G. E.: Sorbitol as a diuretic, loc. cit. p. 105.

[5] Lilienfeld, A., Wright, I. S. and MacLenathen, E.: Intramuscular injections of ascorbic (cevitamic) acid and excretion in the sweat loc. cit. p. 184.

## NEW DEAL ECONOMICS

Two recent editorials in the local New Orleans press deserve some comment. It should not be inappropriate to point out first that the laity is sufficiently interested in medical problems to have editorial comment on these problems in their daily journals.

The Times-Picayune editorial points out that there are two great schools of medicine in Louisiana but that many persons travel the breadth of the state for proper diagnosis and treatment. If the populace as a whole were educated to the need of good hospital service a considerable expense would be saved patients. Regular medical examinations are being used generally but in spite of that fact hospital care is not generally employed, possibly on account of expense.

The second editorial in the Item comments upon what one of the Washington political observers writes, to the effect that the American Medical Association will soon end up in a fight with the President, who is reported to have in mind certain measures for cheapening medicine. This editorial is not at all fair. It says that in many of our large cities medicine has been cheapened by the physicians themselves against the desires of the American Medical Association. It remarks further that the American Medical Association would be better off if it recognized that its official opinion is not that of a great many of its own members. It might be said that this is more or less a foundationless statement because the American Medical Association represents the rank and file of the members, certainly those physicians who have cheapened medicine in cities such as Los Angeles and Seattle have done so very much against the feelings of the great body of medical men in this country.

These two editorials should keep alive in the minds of doctors the fact that the lowering of medical fees and the giving of any service cheaper than is being done now may become a more acute problem than it seems to be just at this moment. Undoubtedly the laity are becoming conscious of the costs of medical care and undoubtedly with the overwhelming majority that President Roosevelt has back of him he in turn may undertake, through the plea of social security, measures which may be the entering wedge, if not actually the beginning of state medicine. If the medical profession wants state medicine, well and good, but this is very doubtful. To the great majority of the men with whom we come in contact such an idea and thought is repugnant. The medical profession wants to maintain its individuality, the control of its professional standards and measures of practice.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

### SHREVEPORT CHARITY HOSPITAL

Following a banquet the Staff meeting was opened by Dr. Mathews at 8:00 P. M. on October 1, 1936. The following members were present: Drs. C. H. Potts, Joe Verser, J. M. Bodenheimer, R. B. DeLee, S. G. Wolfe, W. H. Browning, L. H. Pirkle, H. A. Robinson, L. A. McConnell, M. M. Longino, H. M. Sims, Trifon, W. R. Mathews, Paul E. Winder, C. R. Mays, V. P. Blandino, Cohenour, Battle, Corrigan, T. M. Oxford, D. R. Isom, Duke H. Prothro. J. H. Dickinson, W. M. Scott, E. L. Sanderson, R. T. Lucas, G. H. Cassity, Charles R. Gorman, Leon F. Gray, F. B. White, W. E. Crumpler, Jr., D. B. Daniel, J. B. Askew, J. R. Stewart, E. L. Wenk, J. A. Wilkinson, L. Sanders, Clifford W. Crain, O. O. Jones, H. W. Boggs, G. F. Weber, F. E. DePriest, D. H. Byram, and L. M. Vaughn.

Dr. Sanderson urges that we continue to improve our organization so that we may compete with the Charity Hospital in New Orleans, notwithstanding its financial backing. He suggests that we spend less time trying to increase the quantity of our work and then more effort toward improving the quality of the work will be done. Dr. Sanderson stresses the importance of Clinical Pathological Conferences and Clinical Conferences. He encourages that all members of the staff make an effort to attend these conferences. He stated that many patients who are able to pay doctors bills are now in the Hospital. He asked the cooperation of all staff members to keep these patients out of the Hospital so that these beds may be filled with deserving patients. He also asked for any suggestions regarding the running of the Hospital. Dr. Sanderson asked all members to cooperate in keeping down the expenses of the Hospital. He expresses appreciation of their work for the past year and wishes them success in the coming year.

Following Dr. Sanderson's announcement, the election of officers was held. Dr. Gowen was elected chairman of the staff, Dr. Cassity was elected vice-chairman, Dr. George Wolfe was elected secretary-treasurer. At this time the meeting was turned over to the new officers.

The incoming president, Dr. Gowen, expressed the hope that the same high calibre of scientific programs, so characteristic of the Charity Hospital staff meetings, be maintined. In this connection, he is to appoint a Program Committee after due consideration.

Various suggestions for improvements in services were offered by various members of the staff. Dr. Cassity suggested that facilities for the examination of gynecological patients be improved, namely, that a special table equipped with stirrups be acquired; that proper illumination be provided; and that equipment be furnished, enabling the operator to do cervical cauterizations in treatment rooms on the wards. He pointed out that in this way, many patients who needlessly go to the operating room, could be just as adequately cared for on the ward, thereby lightening the operating room schedule and making it more convenient for all concerned.

Dr. Mathews presented a case of a colored man, aged 39, complaining of jaundice. His mother had died of jaundice. The present illness consisted of pain in the right upper quadrant, fever, chills, edema of ankles, dyspnea, bloody urine, and pale stools. The examination revealed the jaundice and edema, a tender and large liver, and a palpable spleen. The urine contained no bile and the blood studies were not significant apart from the marked secondary anemia. Splenectomy was performed, but the patient died some five weeks after operation of a septic pneumonia. The possibilities of Banti's disease and hemolytic icterus were considered. The case was discussed by Drs. DeLee and Wolfe, and closed by Dr. Mathews, who pointed out that the micro-pathology of the spleen was consistent with the diagnosis of hemolytic icterus.

S. Geo. Wolfe, M. D., Sec.

## STAFF MEETING
## CHARITY HOSPITAL

October 20, 1936

After a splendid banquet, the members of the Staff gathered for a scientific meeting on October 20, 1936,, with the following members present: Drs. Scott, Kerlin, LeDoux, Rowland, Knighton, Jr., Winder, Shavin, Mays, Blandino, Thomas, Oxford, McConnell, Longino, Boone, Daniel, Verser, DePriest, Corrigan, Potts, Edwards, Lucas, Gowen, Dickinson, Sims, Crimpler, Askew, Wink, Boggs, and Wolfe.

The meeting was opened by Dr. Gowen, in the chair, who called on Dr. Edwards for a very interesting report on his recent visit to The Post Graduate Tumor Clinic. Dr. Edwards made mention of many new and ingenious ideas and methods of irradiation therapy. Dr. Maston Scott reported on his recent visit to the convention in Minneapolis. He also brought out many new and valuable pointers.

Beginning with this meeting, the Hospital report was reviewed and revealed that during the month of September, there were 2,481 admissions, 2,453 discharges, 101 deaths, 11 autopsies, 155 births, and 1,282 operations. The very low autopsy percentage was deprecated.

Dr. Gowen indicated that the reading of the Hospital report would be a monthly feature of the meetings in the future. The Program Committee, appointed by the president, was as follows: Dr. Charles Boone, Chairman; Dr. Dickinson, of the Medical House Staff; Dr. McConnell, of the Surgical House Staff; and Drs. Gowen and Wolfe, members ex-officio.

Three interesting cases were next presented: the first by Dr. Dickinson was that of an elderly man who presented multiple small, fluctuant, freely movable, painful, tumescences, confined to the joint regions of the extremities. Speculation as to their nature was cleared up by a biopsy report which revealed the condition to be gout. Next, Dr. Mays and Dr. Boggs presented a case of macrocytic hyperchromic anemia of pregnancy. Dr. Mays pointed out that, although this condition is considered rare, this case is the third which has fallen to his attention in the wards of the Hospital. He also pointed out the similarity between this disease and pernicious anemia, but, at the same time, indicated some of its differences, namely, that free hydrochloric acid may be present in the primary anemia of pregnancy, that the disease terminates with the pregnancy, and that this disease, as associated with pregnancy, is more severe and is more apt to terminate fatally in the absence of vigorous treatment with liver extract. He further pointed out that infants born of these mothers, are more apt to show severe secondary anemia than are those born of normal mothers. The third case was that of an eleven year old colored boy, who, after a short febrile illness with chills, developed bilateral symmetrical gangrene of the feet and ankles. The nature of his disease was admitted to be most obscure, but in the face of an elevated blood pressure, Dr. Wolfe suggested that a sympathetic-parasympathetic imbalance was at fault. The presence of malarial parasites in the blood was considered to be incidental and not of primary etiology.

S. G. Wolfe, M. D., Sec.

## SCHUMPERT SANITARIUM

On October 13, 1936, after dinner in the Sanitarium dining room, the Staff assembled at the call of Dr. George Garrett. Roll call showed 21 members and four visitors present. A letter of application for membership by Dr. R. B. DeLee was read, and the application referred to the proper committee.

(1) Captain M. S. White of Barksdale Field gave a discussion of "Aviation Medicine." He dealt first with the selection of pilots, showing that the trend was away from the "superman" tradition of spectacular aeronautics, the present purpose of the entrance examinations being to choose those men who are so equipped that they will not retard the classes. Normally, it has been found that only 10 per cent of applicants are accepted. Many fail on the eye examination, 20/20 vision being required and 20/15 being nearer the optimum. Much difficulty has been found in testing for night blindness, an important finding. Color testing was also emphasized, Captain White pointing out that 8 per cent of the male population was found to have color blindness by the better tests. Ear defects, equilibration and other phases of the physical examination were dealt with.

Captain White stressed the psychiatric examinations, showing that careful attempts to eliminate the poorly adjusted individuals are very essential. Somnambulism, stuttering, prolonged enuresis and other possible epileptic equivalents were found to be more frequent in the past history of pilots who cracked up than in others.

Various research problems connected with the examinations and with such new developments as high altitude flights were discussed.

Discussion of Captain White's talk and questions were engaged in by Drs. Edwards, Atkins, Wren and Cassity.

(2) Drs. Chapman and Boyce presented a case report concerning a 14 year old white boy who became ill with initial cerebral symptoms, including headache, fever, leg pain and stiff neck. A tentative diagnosis of poliomyelitis was made after a spinal fluid cell count of 820 cases was secured, but later the diagnosis was changed to embolic abscesses of the thoracic and lumbar vertebrae, with extra and intradural extensions. The diagnosis was confirmed on operation and laminectomy of the tenth thoracic to third lumbar vertebra was followed by progressive improvement.

A discussion of deaths during the past month ensued; first, carcinoma of the cervix with fatal pneumonia following radium therapy, discussed by Dr. Edwards; a case of ruptured appendix and general peritonitis in a 12 year old child, by Dr. Wren; and pre-eclamptic toxemia complicated by bronchopneumonia, by Dr. Winder.

C. H. Webb, M. D., Sec.

## TRI-STATE HOSPITAL

The Staff meeting was called to order on October 22, 1936, by Dr. J. E. Knighton Sr., with 21 members and two visitors present. After disposal of the routine business the following scientific program was presented:

The first case, presented by Dr. W. S. Kerlin, was that of a white female aged 59, giving a history of attacks of precordial pain for the past five years, which begin over the precordium, radiating to the left shoulder and down the arm. The patient also has frequent gallbladder attacks and has taken much morphia for relief of pain. She is very nervous and restless and has lost 60 pounds in weight. He teeth were removed in April but a plate has not been obtained. Further questioning of the patient brought out the fact that the pain frequently begins in the left shoulder and later she says the pain is present there most all the time. This case was presented to bring out the importance of obtaining a complete history from a patient. The physical examination revealed a heart normal in size and shape, sounds good, with an occasional extrasystole. Otherwise the examination was negative except for some atrophy of left shoulder muscles, moderate tenderness over the gallbladder area and three plus pus in urine. Roentgen ray of the left shoulder revealed marked calcification of sub-acromial bursa with some damage to the head of the humerus. A flat plate of the gallbladder was negative;no concentration of dye. Electrocardiogram showed no abnormalities. It was concluded that the diagnosis of angina pectoris made elsewhere five years ago was erroneous, and that all the symptoms were secondary to the bursitis. The case was discussed by Drs. Jones, Knighton Jr., Durham, Willis, Sr. and Knighton, Sr.

The second case, presented by Dr. W. B. Worley, was that of a baby boy 13 months of age who was perfectly normal until present illness which began on July 21. The mother's first observation was the passing of dark feces, which occurred several times and presence of blood easily determined grossly. The baby had been taking feedings normally with no vomiting. Physical examination showed a patient distinctly pale. More blood was passed during the rectal examination which was negative, and the abdomen was soft. A laparotomy was done which revealed an intestinal tract full of blood, no gas, and a diverticulum in upper ileum with bleeding from ulcer in diverticulum. The pathologic lesion was removed and the patient improved for several days, when the abdomen became distended and vomiting began. A colostomy was done and the patient improved for seven days then became worse again. He improved but all of the feces continued to pass through the colostomy. A barium enema and meal were given for roentgen ray observation. Soon after this he began to have normal bowel movements and went home. One week later the patient returned for roentgen ray check, was feeling much better, gaining in weight but with a very large abdomen. Roentgen ray revealed a markedly dilated terminal ileum. Drs. Jones, Webb and J. M. Gorton discussed the case. It was the concensus of opinion that post-operative adhesions produced partial obstruction of the ileum resulting in the enormous dilatation of this portion of the intestine.

D. B. Daniel, M. D., Sec.

## THE NORTH LOUISIANA SANITARIUM

The North Louisiana Sanitarium Staff meeting was called to order by the president with 20 members present. After disposal of routine business attention was turned to the scientific program.

Dr. Hargrove reported a case of advanced Addison's disease in a negro, 40 years of age, and passed the postmortem specimens of the adrenals around. The adrenal glands showed extensive tuberculous involvement. The patient's history presented all the symptoms of a hypofunctioning adrenal gland, asthenia, low blood pressure, dehydration, nausea and vomiting, and pigmentation of the buccal mucosa. The case was discussed by Drs. Herold, Gowen and Rigby.

Dr. Herold reported a case of malignant gastric ulcer that had its onset in 1925. Since that time the patient has been under the usual ulcer regime. In 1934 Dr. Heard and Dr. Herold strongly advised surgery but the patient refused operation. Two months ago, due to very annoying symptoms, another gastrointestinal roentgen ray was done and Dr. Anderson expressed the opinion of a malignancy grafted on the ulcer. The patient agreed to surgery this time. Dr. Heard described the operation. An anterior gastro-enterostomy and jejuno-jejunostomy were done, due to a short mesocolon, making it impossible to do the preferable posterior gastro-enterostomy. A gland taken from the region of the ileum showed signs of malignancy and inflammation. No other metastases were found. The patient to date is doing nicely.

Dr. Googe presented a case of malarial hematuria.

H. M. Trifon, M. D., Sec.

## THE SHREVEPORT EYE, EAR, NOSE AND THROAT SOCIETY

The Shreveport Eye, Ear, Nose and Throat Society met in regular session at the Charity Hospital, the evening of Monday, November 2, 1936, at 7:30 o'clock. The president and vice-president being absent, the secretary, Dr. J. A. Wilkinson, presided. The following members were present: Drs. John L. Scales, Claude LaRue, John T. Crebbin, W. L. Atkins, I. Henry Smith and J. A. Wilkinson.

Dr. LaRue presented a case of internal strabismus, a young lady, on whom he had done a tenotomy of the left internal rectus. She had been fitted with glasses and the cosmetic effect was very good, though there still remained a slight turning in of the left eye. It was the concensus of opinion that no further operative procedures should be undertaken at this time. Dr. LaRue was congratulated on his splendid results obtained.

Dr. Crebbin presented a negro man on whom he had done a Denker operation on the left maxillary sinus. The incision had failed to heal and there was a profuse foul smelling discharge of pus coming from the wound. He also had a draining fistula low down on the left cheek. It had not been determined if this was in any way connected with the sinus infection. The patient's blood showed a positive Kahn. It was suggested, after cleansing that the wound be packed with gauze strip saturated with bismuth and tincture benzoin compound.

Dr. Crebbin presented another case of a colored man who had a carcinoma of the left alveolar ridge and antral wall. This developed rather rapidly following the extraction of some teeth.

Dr. Atkins presented a white man with an external fistula of the right sub-maxillary gland. The patient gave the history of having had a stone removed through this opening some months ago, since which time it has drained continuously. It was decided that complete dissection of the gland offered the only hope of cure.

Dr. Atkins presented a second case, a white man had a subacute mastoiditis. Since his hearing was good and there were no symptoms demanding an immediate operation it was thought best to postpone operating.

Dr. Wilkinson presented a young white man who had a severe chronic conjunctivitis and blepharitis. Two laboratory tests were negative for all micro-organisms. Practically all known local treatments had been exhausted. Dr. LaRue suggested a smear be taken for an eosinophile count, looking to the possibility of allergic condition.

There being no further business to come before the society, the meeting was adjourned until the first Monday in December.

Dr. L. W. Gorton, Pres.
Dr. J. A. Wilkinson, Sec.

## FRENCH HOSPITAL

A regular meeting of the French Hospital Staff was called to order Friday, October 9, 1936, at 8:00 P. M. The minutes of the last meeting were read and approved. The deaths which occurred during the month were discussed generally.

Dr. Stadiem presented a very interesting paper on the "The Clinical Application of the Friedman

Test in Pregnancy and Other Conditions." Dr. Stadiem reviewed briefly the historical aspect and physiologic action of the test. In a series of 315 cases Dr. Stadiem has found that the test gives better results if done 15 days after the last period of menstruation. Rabbits are opened 48 hours after 20 c.c. of urine has been injected into the marginal vein. The test should never be used as the sole basis for pregnancy.

These give false-positive proofs: 1. Adenoma of pituitary; 2. granulosa cell tumors; 3. teratoma; 4. certain states at the menopausal age.

The following give positve reactions: 1. pregnancy; 2 ectopic pregnancy, and 3, chorio-epithelioma.

Dr. Harris, in commenting on Dr. Stadiem's paper, spoke of a case which was negative at 48 hours but positive at 72 hours. Another case showed a positive test in one ovary and a negative on the opposite side. The test is not as accurate for ectopic as it is for uterine pregnancy.

Dr. Harris requested Dr. Thomason to discuss an interesting case in which three Friedman tests had been done. Dr. Stadiem opened a rabbit to illustrate a positive Friedman test. Dr. Harris closed the discussion by saying that the name Friedman test is used instead of Ascheim-Zondek.

W. R. Strange, M. D., Chairman.

A regular meeting of the French Hospital Staff was called to order with Dr. Strange presiding November 17, 1936.

The death of patient M. E. S. was discussed by Dr. Ciolino, in the absence of the attending physician. The patient was operated on for a subacute appendicitis. No cardiac lesion could be found pre-operatively, at least, clinically. The second post-operative day the patient began vomiting and a distention of the upper abdomen was present. Her pulse was 90 to 120 but it was found to be rather fast in the beginning, being 116 on admission. The third post-operative day the vomiting continued and the patient became cyanotic. A partial postmortem was performed and the peritoneal cavity found normal throughout. A possibility of pulmonary embolism was considered.

Dr. G. C. Battalora then read a very interesting paper on the "Management of Common Foot Disorders". He briefly reviewed the anatomy and physiology of the foot and discussed more fully pronation, anterior metatarsalgia, hallux valgus, calcaneal spurs, corns and callosities. He stated that pronation is a very common deformity occurring in 90 per cent of individuals. Pronation is due to abduction and eversion of the foot. Treatment consists of a wedged-shaped lift placed inside the heel portion of the shoe. This appliance is thicker along its inner edge, runs forward and tapers to a feather edge along its external portion. It covers four-fifths of the width of the shoe heel. The thickness of the pad varies in each individual case. Correction of footwear is absolutely essential, as well as exercise of the foot.

Anterior metatarsalgia is treated by correcting the pronation and the use of some device to elevate the anterior arch. This simple procedure removed pressure from the metatarsal heals and puts it behind them.

In hallux valgus in cases with slight deformity, relief may be obtained by correcting pronation and using a shoe with a very wide forefoot portion. Excision of the exotosis may be necessary. In cases with marked deformity, resection of the metatarsal head and the inter-position of a fascial flap is necessary.

Calcaneal spurs, which produce pain, have been treated beneficially with the infiltration of 1 per cent novacain solution and 2 c.c. of lipiodol solution. A second injection may be necessary.

Corns and callosities are treated by wearing a shoe sufficiently roomy to prevent pressure of the painful areas and the application of bichloracetic acid with paring away of the horny skin at five day intervals.

Dr. Battalora closed his paper by stating that most of the static disorders of the foot are due primarily to one basic deformity, pronation.

On behalf of the staff Dr. Strange thanked Dr. Battalora for a most interesting and beneficial presentation.

Dr. Strange then reqeusted that in the future all consultants make a written report of their findings to accompany the patient's chart, before discharging the case.

E. A. Baitchman, Assist. to Secty.

## HOTEL DIEU

The regular monthly meeting of the Staff of Hotel Dieu was held on Monday, October 19, 1936, at 8:00 P. M. in the Nurses' Lecture Room of Hotel Dieu.

The meeting was called to order by the President, Dr. E. H. Walet, and with the Secretary, J. A. LaNasa, at the desk.

The Scientific Program consisted of:

a. "Banti's Disease" by Dr. Ruth G. Aleman. Discussed by Drs. Levin, Landry, Jamison, and Levy.

b. "The Early Nursing Care of the Leper" by Dr. T. J. Dimitry.

c. "An Interesting Case of Giant Duodenum" by Dr. A. L. Levin. Discussed by Dr. Salatich.

A recess of one minute was ordered by the Chairman after which the meeting resolved into Executive Session.

## TOURO INFIRMARY

On Wednesday, October 14, 1936 at 8 P. M. the first regular meeting of the Touro Infirmary

Medical Staff since summer vacation was held. Dr. Urban Maes presided.

The customary clinico-pathological conference was ably conducted by Dr. John Lanford. Two cases were presented and discussed. The first was one of acute and chronic nephritis, streptococcal lymphangitis with elephantiasis of both lower extremities, sero-fibrinous pericarditis and cardiac failure. This case was discussed by Dr. J. D. Rives, and, following the presentation of the autopsy material, by Drs. Wirth, Lemann, and Lyons. The second case, discussed and analysed by Doctor Lemann was one of carcinoma of the left ovary with seeding of the peritoneum, pelvis and transverse mesocolon, hypertrophy of the heart and terminal lobular pneumonia.

Lupus vulgaris was discussed briefly but adequately by Dr. J. K. Howles who showed one case of lupus vulgaris, positive histopathologically, developing into basal cell epithelioma, and two cases of lupus erythematosis. These cases were discussed by Dr. Oriol.

An interesting presentation of two cases of streptococcal septicemia of otitic origin with recovery following mastoid operation was then given, one case by Dr. Weil and the other by Dr. Kearney. Drs. Bayon, Anderson, Rodick, Bloch, Crichlow and Lemann discussed most of the aspects of this problem.

Willard R. Wirth, M. D.

## J. T. NIX CLINIC
## NEW ORLEANS

At a meeting held in November the following paper was presented by Doctor Manuel Garcia.

### CARCINOMA OF THE RECTUM IN YOUNG ADULT:
### A CASE REPORT

That carcinoma of the rectum must be suspected in every person past middle age with symptoms referable to the lower bowel, is a respected clinical maxim deserving more extended observance in actual practice. But that these complaints, especially bleeding from the anus, may be signs of rectal cancer even in the young, is a warning almost universally ignored. The tragic sequel of such neglect is well exemplified in the case reported here:

Mr. C. M., a white male, 31 years old, was seen August 16, 1935. For a year he had been under treatment for recurring attacks of diarrhea and bloody stools which had been diagnosed colitis. He had grown gradually worse and had lost weight. His general nutrition was good; weight, 130 pounds; temperature, 99.2°; pulse, 84; blood pressure, 120/80. The head, chest and abdomen showed no indications of pathology but digital examination of the rectum disclosed a friable mass about six centimeters from the anus, bleeding on manipulation.

On August 17, 1935, biopsy showed adenocarcinoma, type III with secondary subacute inflammation and necrosis (Dr. M. Couret, pathologist.) The mass involved almost the entire circumference of the bowel, was papillary and friable, and extended upwards beyond the retrosigmoid junction. Because of the age of the patient and the extent of the growth it was decided that radiation rather than surgery was indicated. A permanent colostomy was done in three stages by Dr. J. T. Nix and when the patient was convalescing he started to receive daily, high voltage roentgen treatments. The total does was 6000 r's given through two portals and directed to the rectal lesion. He was discharged from the hospital September 24, 1935. He improved generally, the colostomy functioned well, rectal bleeding stopped and he gained weight for the next month. On November 9, 1935, he was re-admitted and 62.5 mgms. of radium were placed in a rubber tube in contact with the rectal tumor and left *in situ* for forty-eight hours. The tumor had become very fibrotic and had nearly occluded the lumen of the rectum. The patient continued well for several months. From January 21, 1936, to February 6, 1936, he received roentgen radiation through abdominal, perineal and sacral portals, 800 r's being given to each. His general condition remained good until April when he began to complain of weakness and sleeplessness. From April 15, to April 26, 1936, he started to receive additional radiation but it was discontinued because slight bleeding showed at the colostomy opening. He became bedridden and developed a cough. On May 21, 1936, he was admitted to the hospital with a history of a sudden, profuse hemorrhage through the colostomy opening. Almost immediately he was given 250 c.c. of blood by the indirect method, using a brother as the donor. His condition rapidly grew worse and he expired May 22, 1936.

Autopsy showed matting of intestines in the pelvis and extensive infiltration of the bladder. A large mass was present in the sigmoid. This mass was adherent to the caput coli and a loop of the ileum 10 cm. from cecum. Localized peritonitis indicated leakage in this area. The rectum and lower sigmoid contained a large, dense mass which compressed both ureters and had infiltrated and eroded the wall of the right iliac artery at a point where an intestinal loop was attached, causing a massive hemorrhage into the gut. The entire colon was filled with blood. Metastases were present in the retroperitoneal nodes, the liver and the lungs.

The final diagnosis was carcinoma of the rectum with regional, hepatic and pulmonary metastases, and localized extension with perforation into the right iliac artery, causing fatal hemorrhages. Mechanic hydronephrosis was found.

### SUMMARY

A case of carcinoma of the rectum is reported which had been allowed to progress to a hopeless stage because of failure to perform a digital rectal examination. Though rectal cancer is relatively infrequent in the young, every patient should be given the benefit of a rectal examination in the presence of rectal bleeding.

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## HUTCHINSON MEMORIAL CLINIC

*Symposium on Uterine Bleeding*: Conducted by the Department of Gynecology, Dr. Hilliard E. Miller presiding.

Functional Bleeding of Puberty—Dr. Conrad G. Collins: Functional bleeding of puberty is a condition encountered in young women between the ages of ten and twenty years, characterized by an increased bleeding at the time of menstruation or an increased frequency of bleeding. This bleeding may occur anywhere from one to three weeks apart and last from eight days to four months. It is due to a lack of the luteinizing hormone which in turn is reflected in the endometrium.

In the normal menstrual cycle the premenstrual endometrium shows a secretory as well as proliferative change but due to the lack of luteinizing hormone the endometrium shows only the proliferative change. When this proliferation goes on to an abnormal degree a condition of hyperplasia results.

Where formerly surgery and radium were used in the treatment of puberty bleeding, at present we are using the luteinizing hormone with good results. The dosage given is 1 c.c. per day for five days, repeated every twenty-four to twenty-eight days for three series. We have obtained 90 per cent results with this mode of therapy, very few patients needing surgery or curettage.

Slides were shown demonstrating early proliferative endometrium, late proliferative endometrium, early differentiated endometrium, late differentiated endometrium and hyperplasia of the endometrium.

Uterine Bleeding Associated with Abortion—Dr. Eugene Countiss: Incomplete abortions with continued uterine bleeding are those most often encountered by physicians. If portions of placenta are retained, there is frequently a proliferation of epithelium covering the chorionic villi, rarely producing a chorioepithelioma, or the syncytium may remain embedded in the uterine mucosa, the residual remnants giving rise to so-called placental polyps.

The most common post-abortive local complication is subinvolution with changes in the endometrium, at times referred to as endometritis, giving rise to bleeding, menstrual irregularitis, cramping pains in the lower abdomen and backache.

Among the direct placental causes of abortion and subsequent bleeding are infarction, placenta previas, hydatid mole and premature separation. Maternal factors such as heart or kidney disease, tuberculosis, diabetes, pernicious anemia and pyelitis are more often indications for abortions rather than causes in these days of better treatment. External causes are perhaps over-rated, at least by the laity; for example, trauma to the abdomen, falls, shock and coitus.

Syphilis cannot be denied as an etiologic factor in defective germ plasm, but it is undoubtedly more important in accounting for the expulsion of macerated fetuses during the last trimester than in producing abortions at three months.

The well known signs and symptoms of pregnancy are usually available as a basis for the diagnosis, followed by those of beginning labor. Bleeding, irregular as to onset and amount, and lasting beyond the usual time, should lead us to suspect an abortion. The presence of clots and the bright red color will distinguish the bleeding accompanying abortion from the brownish liquid menstrual flow at first.

Pain is as variable as individuals and even bleeding without pain may be the first sign of an impending abortion, completed within an hour or continued for weeks.

Women with menstrual irregularities offer more perplexing problems and their prolonged or excessive menstruation may be our only clue in the history.

In an early abortion we expect to find the cervix softened and its external os slightly dilated. A canal admitting the tip of the index finger, other points being positive for pregnancy, indicates at least an inevitable abortion. Hegar's sign is absent or lessened, the body of uterus is of firmer consistency and there is less angulation between body and cervix, due to contractions. The finding of products of pregnancy in the cervix is of course conclusive evidence.

Words of caution to the patient to save all expelled products, including blood clots, cannot be over emphasized. Examination of this material will aid us in a definite diagnosis and proper study may give a hint as to the etiologic factor. A defective fetus is too frequently overlooked.

A threatened abortion is one with definite sympoms such as malaise, headache, backache and increased frequency of urination. After a day or two, there is usually a vaginal spotting associated with abdominal cramps. This is the type in which we may prevent expulsion of the embryo or fetus and unfortunately even the diagnosis of pregnancy is often difficult. The Ascheim-Zondek or Friedman tests may be utilized to advantage in this type, being accurate in 90 to 95 per cent of cases.

According to Taussig, an inevitable abortion is characterized by either one or all of the following: (1) Considerable blood loss or a bloody discharge prolonged for several weeks; (2) rather severe pains, occurring at regular intervals and of a cramp-like character; (3) dilatation of the cervix sufficient to admit the tip of the finger; (4) a watery discharge indicative of rupture of the membranes, and (5) conclusive evidence of death of the fetus.

Prolonged and profuse bleeding point to retention of placental tissue, the flow ordinarily becoming very scanty two or three days after a complete abortion. When there is retained tissues the flow remains a brighter red and clotted with an increasingly offensive odor after five or six days. There is an increasing intensity and regularity of painful contractions within one hour after administration of ergot, especially in incomplete abortions after the third month.

Once the diagnosis of a complete abortion has been made, the treatment should consist of rest in bed for five to ten days, or until involution is practically complete; an ice cap to the abdomen to ease pain and, at the same time, stimulate uterine contractions; an ergot preparation every four hours for at least four doses and pituitrin for excessive bleeding.

In threatened abortion complete rest is preferred if the patient's economic status will permit. The patient should be put to bed during the next two or three calculated times for menstruaion. Mild sedatives are of value where uterine contractions have not begun, but morphine must be given when these are noted and repeated every half hour until effective. Since strong purgatives and enemas often stimulate uterine contractions, only mild laxatives should be employed. Corpus luteum extracts are worthy of trial, particularly prior to the usual time of expulsion in habitual abortion.

If an abortion is inevitable, then our aim should be to hasten its completion, first by medication and then by curettage. Gentle massage of the fundus, hot enemas and quinine will often produce desired results. Gynergen in 0.5 c.c. doses, given intramuscularly and repeated two or three times daily, has a more prolonged and active effect than pituitrin prior to the fourth month of pregnancy.

When there is an incomplete abortion without signs of infection, we must try conservative methods for a day or two and then resort to evacuation by means of the sponge forceps or a curette, using aseptic technic. In the average case, a sharp curette is less likely to injure the uterus and placental remnants are more easily removed.

I have purposely avoided discussing septic abortions in the causation of bleeding, the mechanism being essentially the same as in the other types. As to their treatment, I wish to stress the expectant—ergot, quinine, gynergen, pituitrin—in the febrile cases. The best policy is to observe the patient during at least five days of normal temperature before resorting to active treatment, i. e., removal of retained products with the finger, sponge forceps or dull curette. These cases should never have a cervical pack unless there is profuse hemorrhage uncontrolled by other means.

Uterine Bleeding as a Result of Pelvic Infection—Dr. C. Gordon Johnson: By pelvic infection I am referring to an inflammatory condition, acute or chronic, which has involved the uterus, tubes or ovaries. Uterine bleeding in the form of a menorrhagia or metrorrhagia occurs quite commonly as the result of such infection. The nonspecific infection is most commonly due to the streptococcus, staphylococcus or B. coli, and commonly follows criminal abortions. It extends upward to involve the pelvic organs by means of the lymphatic system.

The incidence of a true endometritis is much less than we believed before 1908 at which time the first knowledge of the menstrual histology of the endometrium was given by Hitschman and Adler. When acute endometritis does occur bleeding is rarely found except in cases in which there is retention of embryonic products. Chronic endometritis occasionally is characterized by a menorrhagia but when it occurs the presence of adnexal pathology is so common that we must question the importance of the endometrial factor.

There is no doubt that disturbances of menstruation occur in the presence of salpingitis or oophoritis. The infection involving the tubes is usually in a chronic stage and may be one of four pathologic conditions, namely a hydrosalpinx, pyosalpinx, hematosalpinx or of an abcess formation which together with the most common tubal involvement gives us the so-called tubo-ovarian abscess. While the pelvic hyperemia, which is always present in these cases, is thought to be the immediate factor responsible for the disturbance there is also reason to believe that this factor produces its chief effect on the ovary and its function rather than on the endometrium, so that bleeding of this type is dysfunctional, that is, due to a combination of anatomic and physiologic factors. Indirectly tubal disease may influence menstruation by distortion of the upper portion of the broad ligament to interfere with pelvic circulation. This in turn interferes with ovulation retarding the luteal cycle and resulting in menorrhagia. Where the infection has involved ovarian tissue, disturbances of ovulation and luteinization usually occur, resulting in disturbances of menstruation. The etiologic factor here is the gonococcus. Where the etiologic factor is a nonspecific organism the disturbed ovarian function is due to a perioophoritis resulting in adhesions and a greatly thickened capsule. The uterine bleeding which occurs is thus secondary to a disturbed ovarian function, brought about usually because of a failure of ovulation to take place.

In the treatment of these disorders, I shall at this time give a warning against the use of a curette for bleeding in the presence of an acute pelvic infection, as a marked flareup of this condition will often occur. The use of radium is also definitely contraindicated in any case for the same reason.

If one is called to see a patient whose symptoms are that of abnormal bleeding which is associated with an acute pelvic infection, a conservative form of treatment should be followed, that is, complete bed rest, sedation, and if bleeding is severe, the use of ergot or one of its products. Rarely will it be necessary to resort to such means as packing the uterine cavity.

Vaginal Bleeding Caused by Uterine Fibroids—Dr. Curtis H. Tyrone: Uterine fibroids are the most common of all pelvic neoplasms. They are responsible for about one-eighth of all gynecologic pathology. They are estimated to occur in 20 per cent of all women over the age of 35 years. The most common symptom of fibroids is bleeding. This is usually described as a menorrhagia or metrorrhagia; the menorrhagic form of bleeding is by far the most common type of bleeding.

Any discussion of this most prominent symptom of fibroids must be prefaced by a description of the various types of fibroids and a resume of the various theories of their origin. Uterine fibroids are discrete, nodular, usually multiple growths of muscular and connective tissue fibres, the connective tissue proliferation being secondary. Three types of tumors according to their location in or on the uterus are usually termed: subserous, intramural or interstitial, and submucous growths.

We now come to the discussion of the most frequent symptom of uterine fibroids, i. e., bleeding. It is an almost universal belief that all fibroids present this symptom and that sooner or later will bleed regardless of their size, position or rate of growth and if they do not the patient is regarded as an object of congratulation. On account of this fear patients are frequently mishandled and subjected to unnecessary treatment. On the other hand patients carrying dangerous tumors are advised to defer treatment until bleeding does appear.

Bleeding associated with fibroids must be divided into types, namely, dysfunctional and accidental.

Dysfunctional or myopathic bleeding is usually of the metrorrhagic type. It is usually due to disturbed ovarian function or hyperesterinism with the resulting changes in the endometrium as a hyperplasia. If bleeding occurs in the subserous type of growth it is from the very nature of the case fairly sure to be dysfunctional.

Accidental bleeding results from some vascular lesion for which the tumor itself is responsible. Submucous type of tumors most commonly produce this form of bleeding by the actual rupture of tiny vessels between the endometrial surface of the tumor and the endometrium itself. The contractile force of the uterine wall and the corrosive action of the menstrual flow act to fracture the delicate wall of the venous network and this adds volume and duration to the menstrual flow. Another cause of bleeding is the actual increase of endometrial surface produced by these growths, and irritation of two or more opposed submucous growths. Infection of the endometrium with its resulting ulceration and necrosis produces or increases the amount and duration of the abnormal flow.

Practically, however, the mechanics causing bleeding hold true in theory only because fibroids rarely exist singly. Submucous growths cause hemorrhage out of all proportion to their size. A small tumor no larger than a pea often causes bleeding more than a large interstitial or very large subserous growth.

The hemorrhage is often so prolonged and so severe that it causes marked anemia because the blood-forming organs cannot compensate for the loss during the few days of the month in which there is no bleeding.

It has been so often said that if a patient with fibroids passes the menopause without this troublesome symptom she is free of this symptom forever. This is a dangerous belief and after the menopause, bleeding from a fibroid is a grave symptom and must be investigated, however slight the bleeding may be. It may indicate a necrosis of a pedunculated submucous growth. Often it is a sign of a sarcomatous change in the fibroid. Still more frequently it may indicate the development of an adenocarcinoma of the endometrium.

Syphilis as a Cause of Uterine Bleeding—Dr. E. Perry Thomas: Little is known of syphilis of the female generative organs. It is true that the primary chancre and the gross secondary lesions which affect the external genitalia have long been recognized but syphilitic lesions of the endometrium, uterus, tubes and ovaries, though they must frequently exist in a generalized blood borne infection such as this, are practically never reported; and, rarely indeed, is it ever mentioned, either in text-book or lecture, that syphilis is a common cause of uterine bleeding.

There have been, among others, two chief theories to explain the mechanism of bleeding in these cases. One ascribes it to an organic derangement of the ovary and the other to luetic lesions present in the endometrium. Those cases in which ulcerative lesions of the vaginal mucosa or cervix are sometimes found to be the cause of vaginal bleeding are excluded.

Portis is 1923 reported a case in which he had performed a radical operation for supposed cancer but examination of the specimen revealed a luetic ulceration of the cervix associated with thickening and hyperplasia of the endometrium. No neoplasm was demonstrated and Levaditi stained sections showed a considerable number of spirochetes in the endometrium and wall of the uterus. The patient developed typical secondary lesions of the skin after operation and the Wassermann was strongly positive. This is the only known reported case in which spirochetes have been demonstrated in the uterus in a case of secondary syphilis.

Pichevin in 1905 asserted that not one authenticated case of ovarian syphilis could be found in all medical literature. Since that time, however, at least four unimpeachable cases of ovarian gummata have been reported. These, however, were tertiary lesions which could easily be found upon vaginal examination. There is but one reported case of proven ovarian syphilis in the secondary stage and this is the previously mentioned case of Portis in which a radical operation for assumed cancer had been performed. Spirochetes were demonstrated in the tissue of both ovaries. Ozenne in 1904 reported several cases of abnormal uterine bleeding associated with slight enlargement of the ovaries which responded promptly to antiluetic therapy. These, together with numerous other reported cases of a similar nature are simply assumed cases of ovarian syphilis in which the diagnosis is more a diagnosis of probability than of certainty. However, spirochetes are found as readily in the ovaries and endometrium of luetic fetuses as they are in other organs and it is difficult to escape the assumption that the ovary is involved in secondary syphilis. In the only proved case of secondary syphilis of the ovary, the changes were simply those of chronic inflammation, except for the fact that properly stained sections revealed the presence of spirochetes.

It is difficult to explain this so-called syphilitic bleeding by the changes in the endometrium which have, thus far, been described, but this, because of the scantiness of the material available for study, has been advanced as one explanation for the occurrence of bleeding in syphilitic women.

The other assumption, that the ovary is responsible for syphilitic bleeding, is equally as difficult to prove. It is generally regarded at the present time that uterine hemorrhage, except in those cases of organic disease such as carcinoma, and polypi is of ovarian origin and that uterine hemorrhage is simply the expression of the endometrial response to the ovarian stimulus. It is further assumed by those who incriminate the ovary in syphilitic bleeding that secondary syphilis of this organ is much more common than can be proven. No definite lesion in the ovary, aside from swelling, chronic inflammatory changes, and the presence of spirochetes can be described to account for bleeding of such a nature but in accordance with the general conception of uterine hemorrhage it seems more probable that the ovary and not the endometrium or uterus is the responsible organ in syphilitic bleeding.

There seems but little reason to doubt the causal relationship between hemorrhage and syphilis in known syphilitic women, in whom all other causes of bleeding have been eliminated and all forms of treatment, save antiluetic therapy are futile. However, the term syphilitic bleeding is also used to denote a few cases of uterine hemorrhage in women who show no clinical or laboratory evidence of syphilis but in whom all other causes of bleeding have been excluded and for whom no treatment save arsphenamine and mercurials have been successful. A definite diagnosis of syphilis simply from the response to a therapeutic test in a case of this sort is a dubious one at best but if a diagnosis must be made, syphilis, or better, probable syphilis, certainly appears to be a more logical conclusion than anything else that can be offered. Such doubtful diagnoses are strengthened by the fact that latent syphilis is much more common in women than in men. It is conceivable how an infected woman with no evidence of syphilis can present symptoms of uterine hemorrhage which can be controlled by no other measure save antiluetic therapy. To this dubious class belongs the woman whose history I will now recite:

Mrs. A. S. S., has complained of irregular menstruation since its inception. The menarche began at the age of twelve and her periods from the onset, occurred from one to two weeks apart and were never constant in duration, each time lasting from several days to several weeks. The flow has always been more profuse than normal and frequently contained clots. No pain has ever been associated with her flow. No other symptoms of either a local or systemic nature have occurred during her present illness save that for the past month she has suffered from palpitation and weakness.

She has been treated at various clinics for her menstrual disturbances. Diagnostic dilatation and curettage was performed seven times from 1924 to 1932. In 1929 at laparotomy, the right ovary, enlarged and cystic, was removed. The scrapings obtained by curettement were always reported as thickened and hyperplastic by the pathologist.

None of these measures influenced the patient's complaint and her menstrual irregularity continued until on September 19, 1934, she presented herself at the Hutchinson Memorial Clinic. Her bleeding at this time had been continuous for the past two months and necessitated the use of two napkins daily.

Physical examination at that time was essentially negative and vaginal examination revealed only a light enlargement of the left ovary. The Wassermann was negative and urinalysis showed no abnormal changes. The blood count revealed a secondary anemia of mild extent.

A tentative diagnosis of functionl uterine bleeding resulting from hyperplasia of the endometrium was made and normal therapy was instituted. Her bleeding continued daily as before. Dessicated thyroid gland was added to the daily dose of follutein and this therapy was continued for another month, at the end of which time, her bleeding was unabated. On December 3, 1934, amniotin, 2 c.c. or 800 units, was given daily for four doses when her bleeding became much more excessive and this therapy was discontinued. The case was reviewed before referring her to the hospital for hysterectomy and it was decided that in spite of her negative Wassermann, a therapeutic test with neoarsphenamine should be attempted before performing hysterectomy. The Wassermann was repeated and again reported negative. Six-tenths gram of neoarsphenamine was given intravenously on December 22 and the Wassermann, repeated on the two succeeding days, was reported negative. Her bleeding became progressively less and one week after the injection, entirely ceased.

The menses occurred regularly, every twenty-eight days, of seven days duration for two months after the injection when her metrorrhagia began again. Active antiluetic therapy was then instituted and her menses have been normal since, with one exception. During a period of rest from the first course of neoarsphenamine bleeding occurred daily until the resumption of treatment.

Dr. Hilliard Miller presented a paper on "Carcinoma as a Cause of Uterine Bleeding" which will be published elsewhere.

Next meeting Wednesday, December 5, 1936
Scientific Session
Symposium—Peptic Ulcer
Dr. Alton Ochsner, Presiding

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# TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

## CALENDAR

DECEMBER 2. Mercy Hospital Staff, 8 p. m.

DECEMBER 2. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

DECEMBER 2. Board of Governors, 1st and 2nd District Dental Society, 8 p. m.

DECEMBER 7. Board of Directors, Orleans Parish Medical Society, 8 p. m.

DECEMBER 7. Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.

DECEMBER 7. Pathologic Conference, Hotel Dieu, 8:15 p. m.

DECEMBER 8. Charity Hospital Dental Staff, 8 p. m.

DECEMBER 9. Touro Infirmary Staff, 8 p. m.

DECEMBER 11. French Hospital Staff, 8 p. m.

DECEMBER 14. ORLEANS PARISH MEDICAL SOCIETY, 8 p. m.

DECEMBER 15. Charity Hospital Medical Staff 8 p. m.

DECEMBER 16. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

DECEMBER 16. Charity Hospital Surgical Staff, 8 p. m.

DECEMBER 17. Eye, Ear, Nose and Throat Club, 8 p. m.

DECEMBER 18. I. C. R. R. Hospital Staff, 12 noon.

DECEMBER 21. Hotel Dieu Staff, 8 p. m.

DECEMBER 22. Baptist Hospital Staff, 8 p. m.

DECEMBER 23. Clinicopathologic Conference, Touro Infirmary 11:15 a. m. to 12:15 p. m.

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During the month of November the Society held two regular Scientific Meetings as follows:

November 9

The Treatment of Trichophytosis Interdigitalis
By Dr. Leo N. Elson.
Discussed by Dr. D. L. Watson.

Clinical Aspects of Goiter. a
By Dr. Howard R. Mahorner.
Discussed by Dr. Alton Ochsner.

Color Motion Pictures of the Larynx.
By Dr. Francis E. LeJeune.

November 23

The Etiology of Venereal Lesions.
By Drs. E. von Haam and Charles Lafferty.
Discussed by Dr. James K. Howles.

Some Minor Disorders of the Female Urethra.
By Dr. Eugene Vickery.
Discussed by Dr. Hilliard E. Miller.

Surgical Treatment of Scleroderma.
By Dr. Michael E. DeBakey.
Discussed by Dr. Rudolph Matas.

At this meeting the following nominations for Officers for 1937 were handed in to the Secretary in accordance with the By-Laws:

### NOMINATIONS

PRESIDENT—Dr. James T. Nix.
Endorsed by Drs. Frederick L. Fenno, Val H. Fuchs, Rudolph Matas and Thos. Benton Sellers.

FIRST VICE-PRESIDENT—Dr. Shirley C. Lyons.
Endorsed by Drs. Urban Maes and Rudolph Matas.

SECOND VICE-PRESIDENT—Dr. Geo. Hauser.
Endorsed by Drs. M. J. Lyons and R. F. Sharp.

THIRD VICE-PRESIDENT—Dr. Edgar Burns.
Endorsed by Drs. Val H. Fuchs and B. J. DeLaureal.

SECRETARY—Dr. Gilbert C. Anderson.
Endorsed by Drs. Frank J. Chalaron and J. A. Danna.

TREASURER—Dr. Edwin H. Lawson.
Endorsed by Drs. Frank J. Chalaron and Thos. Benton Sellers.

LIBRARIAN—Dr. Alton Ochsner.
Endorsed by Drs. C. Grenes Cole and Emmett Irwin.

### ADDITIONAL MEMBERS BOARD OF DIRECTORS

Dr. Donovan C. Brown—Endorsed by Drs. Manuel Gardberg and Ben R. Heninger.

Dr. F. E. LeJeune—Endorsed by Drs. W. P. Gardiner and Maurice Lescale.

Dr. Frederick L. Fenno—Endorsed by Drs. L. C. Chamberlain, Val H. Fuchs and Waldemar R. Metz.

The following Delegates and Alternates to the Louisiana State Medical Society were elected for a term of two years:

### DELEGATES

Dr. C. Grenes Cole
Dr. Leon J. Menville
Dr. Wm. H. Seemann
Dr. Frank J. Chalaron
Dr. Waldemar R. Metz
Dr. Geo. H. Hauser
Dr. Frederick L. Fenno
Dr. John A. Lanford
Dr. D. J. Murphy
Dr. Edwin L. Zander
Dr. John Signorelli

### ALTERNATES

Dr. S. M. Blackshear
Dr. H. B. Alsobrook
Dr. Alton Ochsner
Dr. E. H. Lawson
Dr. Roy W. Wright
Dr. I. M. Gage
Dr. Jerome E. Landry
Dr. G. C. Anderson
Dr. Roy B. Harrison
Dr. P. Graffagnino
Dr. H. E. Miller
Dr. Marcy J. Lyons
Dr. S. B. McNair

Drs. I. M. Gage and Lucien A. LeDoux read papers before the Third District Medical Society meeting at Lafayette, Louisiana, September 11.

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Drs. John A. Lanford, Francis E. LeJeune and Leon J. Menville were guest speakers of the Gulf Coast Clinical Society at Mobile, Alabama, recently.

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Drs. C. C. Bass, Alton Ochsner and Arthur Vidrine attended the meeting of the American Association of American Medical Colleges in Atlanta.

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Drs. I. I. Lemann and John H. Musser attended the meeting of the American Climatologic and Clinical Society at Richmond, Virginia, October 26-28.

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Dr. Shirley C. Lyons attended the meeting of the Alumni Association of the Mayo Clinic at Rochester.

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Dr. Henry W. E. Walther was guest speaker before the Georgia Urological Society at Macon, November 2.

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The following doctors were elected to membership November 2:

ACTIVE: Drs. Samuel Karlin and Prudence E. Prouet.

ON TRANSFER TO ACTIVE: Drs. Michael E. DeBakey and Geo. B. Grant.

INTERNE: Drs. Henry E. Askin, Wm. S. Bethea, James R. Godfrey, James M. Hollimon, Everett M. Harrison, Onnie P. Myers, Earle D. McKelvey, J. Arthur Sproles, Jr., John J. Young, Lawrence W. Burt, Samuel T. Clark, Stanley Cohen, Samuel H. Colvin, Jr., Ralph Friedman, Albert P. Goldner, Pembroke T. Grove, Albert P. Kimball, Elizabeth Lewis, Hippolyte P. Marks, Jr., Paul L. Marks, Samuel B. Nadler, Thomas C. Naugle, Robert E. Quinn, John M. Ramage, Lee C. Schlesinger, Earl S. Seale, Edwin P. Solomon, Melvin D. Steiner and Gilbert C. Tomskey.

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### TREASURER'S REPORT

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|---|---|
| ACTUAL BOOK BALANCE: 9/30/36 | $1,656.83 |
| October Credits: | $ 233.92 |
| TOTAL CREDITS: | $1,890.75 |
| October Expenditures: | $ 448.58 |
| ACTUAL BOOK BALANCE: 10/31/36 | $1,442.17 |

### LIBRARIAN'S REPORT

During the month of October, 68 volumes were added to the Library. Of these six were received by binding, 50 by gift and 12 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is given below.

The Library has loaned 743 books and journals to doctors during October, or more than 1½ to each active member of the Society. In addition 1,116 items have been loaned to students making a total of 1,859. These figures do not include the great use of books and journals within the Reading Rooms.

On request of physicians, members of the staff have collected material on the following subjects during the month.

Boils and carbuncles.
History of etiology of malaria.
Yellow fever in New Orleans.
Diseases of the South.
History of leprosy in Louisiana.
Nervous and psychiatric aspects of hypertension.
Chronic ulcerative colitis.
Early surgery of the heart.
Dwarfism in the history of medicine.
Diseases of the nasopharynx.
Embolectomy.
Embolism of lower extremities.
Arteriography.
Hydronephrosis in children.
Discovery of anesthesia.
Heterotherapy.
Otoscleronectomy.

NEW BOOKS—October

Starling, E. H.—Principles of Human Physiology. 1936.

East, Terence—Recent Advances in Cardiology. 1936.

MacCallum, W. G.—Textbook of Pathology. 1936.

Howell, W. H.—Textbook of Physiology. 1936.

Sollmann, Torald—Manual of Pharmacology. 1936.

Pardee, H. B.—What You Should Know About Heart Disease. 1935.

Hawaii Territorial Assn.—Transactions. 1936.

Geshickter, C. F.—Tumors of Bone. 1936.

Sloan, E. P.—The Thyroid. 1936.

McGuigan, H. A.—Introduction to Materia Medica and Pharmacology. 1936.

Bailey, Hamilton—Recent Advances in Genito-Urinary Surgery. 1936.

Wolf, William—Endocrinology in Modern Practice. 1936.

McBride, E. D.—Disability Evaluation. 1936.

Burnham, F. W. E.—Haemocytes and Haemic Infections. 1913.

Aurep, G. V.—Studies in Cardiovascular Regulations. 1936.

Vesalius, Andres—Readings from Vesalius. 1936.

Gilbert C. Anderson, M. D., Secretary.

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# LOUISIANA STATE MEDICAL SOCIETY NEWS

## THE CHRISTMAS SEAL SALE

The thirtieth nationwide Christmas Seal Sale to be conducted by the National Tuberculosis Association opened November 26 and is being carried on at present. Fourteen million seals bearing the picture of Santa Claus and the insignia of the double barred cross have been sent throughout this state by the Tuberculosis and Public Health Association of Louisiana, one of more than 2000 groups affiliated with the national organization in the campaign against tuberculosis.

In 43 parishes the seals will be sold by organized local groups, in the remaining 21 the state association will offer them through the mail, returns being made to 535 St. Charles Street, New Orleans, headquarters of the Tuberculosis and Public Health Association of Louisiana.

The Christmas Seal Sale constitutes the one fund-raising effort of the year sponsored by the National Tuberculosis Association and affiliated state groups and is the sole means of financing their educational program for the eradication of disease.

The facts that tuberculosis can be prevented and cured will be stressed in this program and the need of case finding, early diagnosis and treatment by the latest established methods, including surgery, will be fully presented.

In opening the 1936 Sale Dr. W. H. Seemann, President of the Tuberculosis and Public Health Association of Louisiana, calls attention to the fact that while the death rate from tuberculosis has been reduced to seventh place for the country at large the disease still holds third place as a cause of death in Louisiana. He quotes the following extract from a statement issued by Dr. Kendall Emerson, Managing Director of the National Tuberculosis Association:

"Despite the fact that we have tuberculosis more nearly under control than ever before, we cannot afford to relinquish an atom of the pressure which is being applied to exterminate it. In a sense we are at the most difficult period in the whole campaign. We are now looking for a hidden enemy lurking in unexpected places. This requires added resources and admits of no retrenchment in our program.

"The frequently reiterated fact that while tuberculosis has taken sixth or seventh place as a cause of death in the whole population, it still leads in the deaths between 15 and 40, proves the need of a continued campaign. Although diagnostic methods have steadily improved it is still true that only 13 per cent of sanatorium admissions are found to be in the first stages of the disease. This means that far too many unrecognized cases in the community are still threatening their neighbors with infection. There is no phase of our work where effort can be relaxed. On the other hand we are at a point in the history of tuberculosis control when we can claim with confidence that a more intensive drive along accepted lines gives reasonable hope of actual elimination of the disease."

In New Orleans the representative group is the Tuberculosis Committee of New Orleans of which Dr. John H. Musser is chairman. The Committee has announced its chief concern at this time to be the work of promoting tuberculin tests and roentgen rays among the school children of the city for the purpose of locating those unrecognized cases to which Dr. Emerson refers.

## SHREVEPORT MEDICAL SOCIETY

The regular meeting of the Shreveport Medical Society was called to order on November 3, 1936, with 18 members and one guest present. The minutes of the previous meeting were read and adopted.

Treasurer's Report: The Treasurer reported that there were 131 members with dues paid and that there was $1209.81 in the bank with no outstanding bills.

Committee Reports: The Resolutions Committee, Dr. Butler, Chairman, introduced a resolution of regret on the death of Mrs. Bella Abramson and these resolutions were duly adopted by the Society.

The Committee investigating the application of Dr. R. B. DeLee for membership reported favorably.

Scientific Program: Dr. Cohenour presented an interesting case of imperforate hymen with hematocolpos. This case was discussed by Drs. Winder, Trifon, J. A. Hendrick and Sanders. Dr. Pipes presented the subject of allergic dyspepsia. This paper was discussed by Drs. DeLee, Cohenour and Rigby.

Unfinished Business: The regular rules were suspended and Dr. DeLee was elected to membership by open ballot. The oath was administered by the President.

New Business: Application of Dr. P. R. Googe for membership was received and the Society ordered that it take the usual course.

Paul D. Abramson, M. D., Sec.

## AMERICAN UROLOGICAL ASSOCIATION SOUTHEASTERN BRANCH SOCIETY

The next meeting of the Southeastern Branch of the American Urological Association is to be in Charlotte, Friday and Saturday, December 4 and 5 with Dr. H. W. E. Walther in the chair. The following are some of the gentlemen who are to appear on the scientific program: Dr. N. G. Alcock, Iowa City; Dr. Edgar G. Ballenger, Atlanta; Dr. J. Dellinger Barney, Boston; Dr. H. C. Bumpus, Pasadena; Dr. Theo. M Davis, Greenville and Charlotte; Dr. Russell S. Ferguson, New York; Dr. Charles M. McKenna, Chicago; Dr. Alexander Randall, Philadelphia; and Dr. Gilbert J. Thomas, Minneapolis.

This is the third annual meeting of the Society. The first meeting was in Atlanta and the last in Nashville. There are now 210 members, 182 active and 28 associate. During the three years of the Society's existence there have been two associate members who have had their status changed to active membership because of a change in their qualifications. This plan of having both active and associate members is one that is being followed by all of the branch societies.

There are several items of interest to all members of the Association that should be known:

An objective, suggested by our Past President, Dr. Ballenger, is that urologic advances of a practical nature be abstracted or used as subjects for editorials for the state journals in our territory. By this means the doctor doing general medicine, who sees the patients first, could be kept better informed as to our progress in diagnosis and treatment. Urologists are being called upon to treat too many patients whose conditions have become incurable because of neglect in the early stages of their disorders.

A history of urology of the Southeastern States is getting under way. There has been a committee appointed to compile facts concerning urology in the early days. If you know of any of the older physicians who are familiar with the early works of urology in this section, we will appreciate it if you will communicate these facts to the Executive Committee member of your state.

Invitations have been received from the following cities to hold the next (1937) meeting there: Tampa, Atlanta, Louisville, Miami, Birmingham, and Memphis.

## AMERICAN COLLEGE OF SURGEONS

At the meeting of the American College of Surgeons held in Philadelphia the week of October 19 Dr. Alton Ochsner was made a regent to hold office for three years. New Orleans has been represented on the Board of Regents during past years by Dr. Rudolph Matas, Dr. C. Jeff Miller and Dr. F. W. Parham.

Dr. Hugh T. Beacham was placed on the Honor Roll, his histories being among the five best submitted in the United States. Dr. Hilliard E. Miller and Dr. Thomas B. Sellers were elected to the Board of Governors of the College.

Dr. James T. Nix had a magnificent exhibit of oil paintings, microphotographs and growth specimens of malignant lesions. This exhibit was so acceptable to the Board of Regents that it was placed in the Hall of Science in Chicago.

## NEWS ITEMS

The following members of the faculty of the Graduate School of Medicine of Tulane University attended the meeting of the Southern Medical Association held at Baltimore, Maryland: Prof. Walter J. Otis, Dr. Rawley M. Penick, Jr., and Prof. Wm. A. Wagner.

Dr. Henry W. E. Walther, senior urologist of the Southern Baptist Hospital, New Orleans, was guest speaker before the Georgia Urological Society, at Macon, on November 2, his subject being: Present Status of Treating Urinary Infections.

Drs. O. W. Bethea and Lucien LeDoux addressed the Seventh District Medical Society meeting in Lake Charles on November 5, 1936.

## SOUTHERN MEDICAL MEETING IN NEW ORLEANS

Louisiana and the city of New Orleans are to be honored by the Southern Medical Association which, at its meeting held recently in Baltimore, decided to hold its 1937 session in New Orleans. This meeting is announced for November 30 to December 3. The medical profession of the city will welcome heartily this great organization next year when they come to New Orleans.

## SISTER STANISLAUS HONORED

The middle of last month there was held in the Municipal Auditorium a magnificent meeting which paid tribute to the Sisters of Charity and the great leader of the order of Charity Hospital, Sister Stanislaus. Tribute was paid by representatives of many religious faiths and the great work these wonderful women are doing was stressed. The occasion was most inspiring.

## INFECTIONS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the State of Louisiana, which contain the following summarized information: For the week ending October 17, pulmonary tuberculosis led all reportable diseases with 36 cases listed. Other diseases listed in double figures included 33 cases of pneumonia, 30 of cancer, 20 of diphtheria, 19 of malaria, 16 of typhoid fever and 12 of syphilis. Caddo, Sabine and Webster Parishes each reported 3 cases of typhoid fever. There was a case of poliomyelitis reported from West Carroll Parish and a case of cerebrospinal meningitis from Richland Parish. In Orleans Parish 1 case of typhus fever was discovered. For the week ending October 24 there was a large increase in the number of cases of pulmonary tuberculosis, syphilis and gonorrhea reported, there being 75 of the former and 73 cases each of the latter diseases. Pneumonia also increased to 55 cases and malaria to 47. Other double figure diseases included 29 cases of diphtheria, 25 of cancer, 23 of influenza and 15 each of scarlet fever and typhoid fever. No Parish in the State reported more than two cases of typhoid fever. Of the rarer diseases 1 case of undulant fever was listed from Orleans Parish. For the week ending October 31 there was a decrease in reportable diseases all along the line. Gonorrhea with 45 cases, followed by syphilis with 444 cases were the two most popular diseases. Other diseases reported included 33 cases of cancer, 32 of pneumonia, 26 of pulmonary tuberculosis, 24 of malaria, 15 of diphtheria, 11 of typhoid fever and 10 cases of the rather infrequently reported disease, hookworm. Again this week no Parish reported more than two cases of typhoid fever, however a case of undulant fever was reported from East Baton Rouge, and one each from Franklin, St. Helena and West Feliciana Parishes. One case of meningitis was listed from Orleans Parish. For the 45th week of the year, ending November 7, syphilis again came into its own as one of the most frequently reported diseases, there being 59 cases recorded, followed in order of frequency by 47 cases of malaria, 38 of pulmonary tuberculosis, 36 each of pneumonia and influenza, 34 of cancer, 29 of diphtheria, 27 of gonorrhea and 16 of scarlet fever. The only unusual disease reported this week was 1 case of epidemic cerebrospinal meningitis from Orleans Parish, which was imported from some other Parish.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census reports that for the week ending October 10, there were listed 162 deaths in New Orleans, divided 96 white and 66 negro. The death rate for the group as a whole was 17.6; for the white race 14.7 and for the negro 24.7. The infant mortality rate this week was 134 largely as a result of the rate of 155 in the negro population. For the next week, ending October 17, there were somewhat fewer deaths in the city, there being 153 listed, giving a rate of 16.6. The infant mortality rate this week was 116. The rate for the following week, ending October 24, was just about the same as the previous week, being 16.3 as a result of 150 deaths divided 90 white and 60 negro. The infant mortality rate this week was 93. For the week ending October 31, the total deaths and the death rate were exactly the same as the previous week, however there were

4 fewer deaths in the white race and 4 more in the negro than were reported the previous week. The infant mortality rate was only 70 this week. Figures for the rates of the two races were not given. For the week ending November 7, there were almost no changes from the previous two weeks, there being 148 deaths with the same number of white people dying in the city as in the previous week and two less negroes. The infant mortality rate was 76. So far this year the record is not as good as it was last year. The death rate for the first 45 weeks of this year is 18.3 as contrasted with 16.1 in 1935.

## WOMAN'S AUXILIARY

### Louisiana State Medical Society

President, Mrs. James Byron Vaughan, Monroe.

President-Elect, Mrs. George D. Feldner, New Orleans.

First Vice-President, Mrs. F. G. Ellis, Shreveport.

Second Vice-President, Mrs. T. H. Watkins, Lake Charles.

Third Vice-President, Mrs. E. B. Middleton, Homer.

Fourth Vice-President, Mrs. R. R. Arceneaux, Welsh.

Recording Secretary, Mrs. C. Grenes Cole, New Orleans.

Corresponding Secretary, Mrs. Joseph P. Brown, Monroe.

Treasurer, Mrs. Courtland P. Gray, Monroe.

Parliamentarian, Mrs. R. T. Lucas, Shreveport.

### CADDO PARISH

The re-assembly meeting of the fall of the Woman's Auxiliary to the Shreveport Medical Society was held on Wednesday afternoon in the home of the President, Mrs. R. T. Lucas, with 65 members enjoying the occasion. With Mrs. Lucas in the chair, there was a brief business session. The reports of the officers and committee chairmen were given and plans for a Hallowe'en barn party for the evening of October 30 were discussed.

Mrs. Bush read a tribute to the memory of the beloved late Mrs. Bella Abramson while the auxiliary members stood in sorrow with heads bowed.

The program consisted of several interesting current events in the world of medicine given by Mrs. Harold Quinn, and a charming dramatic entertainment by the gifted Miss Margaret McMichael.

After the meeting adjourned, the tea-hour was enjoyed by all those present.

Mrs. M. D. Hargrove,
Publicity Chairman.

### CLAIBORNE PARISH

The Claiborne Parish Woman's Auxiliary of the Claiborne Parish Medical Society held their October meeting in the home of Mrs. J. C. Sherman, Haynesville. A brief business session was held with Mrs. R. H. Marlatt presiding. Reports of officers and committee chairmen were heard. Definite plans were made for the regular tuberculosis sale and announcements of the date of the sale to be made.

Mrs. H. R. Marlatt, State Chairman of the Indigent Physicians' Fund stressed the importance of a liberal donation to the Fund the coming year.

The Auxiliary was fortunate in having Miss Nettie Ethridge, Secretary to Dr. Ayo in the East Louisiana Hospital at Jackson, La., as their guest, she being a visitor in the home of her uncle, Dr. C. W. Phillips of Haynesville.

The Claiborne Parish Auxiliary extends congratulations to the Fourth District Medical Society in their selection of Dr. S. A. Tatum for their President for the coming year. The Auxiliary wish to express to Dr. Tatum their best wishes for a very successful and happy year.

Mrs. C. W. Phillips,
Publicity Chairman.

### OUACHITA PARISH

The Woman's Auxiliary to the Ouachita Parish Medical Society held their first meeting of the season at the Lotus Club with 21 members present. The President, Mrs. J. P. Brown, conducted the meeting during the luncheon. Two new members, Mrs. A. Scott Hamilton, and Mrs. William Guerriero, were welcomed by the auxiliary members.

Mrs. John Procher gave a most interesting paper on the life of Dr. E. Lewis, an outstanding physician of Louisiana. Mrs. Burgoyne and Mrs. Sam Bendel, were guests of the auxiliary.

Mrs. W. L. Bendel,
Publicity Chairman.

### JEFFERSON DAVIS PARISH

Mrs. John G. McClure was hostess to the Jefferson Davis Parish Medical Auxiliary Tuesday afternoon, November 10, at her home in Welsh. Mrs. G. W. Remage opened the program with the reading of an article which told of an amazing number of unsanitary conditions in our national capital.

Mrs. E. V. LaCour and Mrs. Claude A. Martin both gave articles on the prevention of blindness.

Plans were made for conducting an essay contest on "Sight Saving" with a subscription to Hygeia as a reward.

Mrs. Claude A. Martin,
Publicity Chairman.

### ORLEANS PARISH

It was a large and enthusiastic group of Auxiliary members and their guests who met at the Orleans Club November 11, for their monthly meeting and reception. The guest speaker for the afternoon, Mr. Hermann Deutsch, New Orleans writer and newspaper man, gave a review of William Faulkner's new book, "Absalom, Absalom." It was a most interesting program and much enjoyed by everyone. During the business meeting, the tuberculosis group of auxiliary activities gave a splendid report of work underway through the schools and New Orleans Tuberculosis Association. The Auxiliary is providing specially prepared posters to be placed in all grades of the public schools. These posters are large and attractive, telling a health story which children of each respective grade will be able to understand. The principals and teachers have expressed their appreciation for this much needed assistance. Speakers have also been procured to lecture before the Parent-Teachers Association of all white and negro schools. Mrs. Francis Lejeune and Mrs. Hermann Gessner and their committees have been untiring in their efforts and are to be commended for their splendid work.

In co-operation with the New Orleans Tuberculolis Committee, a large group of auxiliary members under the direction of Mrs. George Feldner have been preparing thousands of Christmas Seals for sale to the public as part of this campaign. The work of this commitaee has been of invaluable help. The tuberculosis campaign is only part of the educational program of the Auxiliary under the capable leadership of Mrs. W. W. Butterworth.

Mrs. Edgar Burns,
Publicity Chairman.

### CADDO PARISH

On Wednesday, November 11 the members of the Woman's Auxiliary to the Shreveport Medical Society turned back the pages of time and lived for a few hours in the old South. The Shrine clubhouse on Cross Lake was chosen for the occasion. The South's loveliest flowers were used in profusion throughout the clubhouse. The hostesses, in gay-colored antebellum costumes of taffeta and lace, greeted members as they arrived and after the program, served refreshments typical of the old South.

The business session was conducted by the President, Mrs. R. T. Lucas. The program consisted of an address on "The Southern Doctor" by Dr. S. C. Borrow, and songs by a colored quartette. Interesting current events were given by Mrs. W. M. Scott.

Mrs. M. D. Hargrove,
Publicity Chairman.

## BOOK REVIEWS

*The Thyroid*: *Surgery, Syndromes*: By E. P. Sloan, M. D. Edited by Members of The Sloan Clinic. Charles C. Thomas, Springfield, 1936. Illus. pp. 475 with index. Price $10.00.

The author of this book, who regrettably died before it had gone through the press, was the founder of the Sloan Clinic in which, up to 1934, over 20,000 thyroid patients had been registered, over 15,000 of whom had been operated on. The basis of this enormous experience is the background of the book, which occupied ten years in the writing.

The subject of thyroid disease has been emphasized chiefly from the surgical aspect but nothing important on any phase seems to have been omitted. The chapter on etiology is comprehensive, though the author himself leans to the mineral deficiency theory. The chapter on phophylaxis is insistent that the keynote of the future therapy of goiter is not surgery but the prophylaxis of endemic goiter, and very striking are the statistics from European endemic centers, which show that five generations of goitrous forebears will result in a high incidence of cretinism. Timely surgery, with the idea of decreasing cardiovascular complications, is also stressed. In this connection it is interesting to note that when Sloan first advanced this idea, in a paper read in 1915 and based on a thousand thyroid operations, such a storm of discussion followed at the meeting that the editors of several journals declined to publish the paper in its entirety on the ground that it would merely arouse controversy.

Although the author was one of the founders of the American Association for the Study of Goiter, the first meeting of which was held at the Sloan Clinic, he does not use the very simple classification recommended by that society (diffuse, diffuse toxic, nodular, nodular toxic). After pointing out the needs of a universal language for thyroid disease, which will undoubtedly, he says, come in time, he carefully defines all the terms now in use and reviews briefly the current theories on classification. His own grouping includes nontoxic goiter, toxic adenoma, exophthalmic goiter, and a miscellaneous group, under each of which are several sub-groups. This is not the place to discuss the logic or convenience of his classification in comparison with others, but the author's own comment on it is illuminating, that for twenty-five years he had tried to devise a classification which would prove adequate, but every one he tried "failed to offer selective pigeon-holes for the different types of disease." His classification of nodular goiter into four clinical groups, namely, cardiovascular, anaphylactic, hyperplastic and mixed, throws considerable light upon the confused subject of toxic nodular goiter and explains why it sometimes differs from diffuse goiter both in its symptomatology and in its response to Lugol's solution.

Operative risk is estimated in six different degrees, ranging from the excellent risk of the patient with an atoxic gland to the inoperable state of the patient first seen in crisis or in extremis. Against each degree of risk is set the amount of surgery justified in each risk, and the contraindications to surgery. The indications for stage surgery are few, but urgent when they do exist. Another excellent feature of this chapter is a summary of the prognosis under each type of goiter. Most of the facts are generally known; a few are surprising, and illustrate the wisdom of pausing at intervals to analyze one's experience with a view to mapping one's future course. The chapter on surgical anatomy is largely based on the author's original observations and dissections. It will be remembered that he was the first to point out the possibility of removing the gland without cutting the prethyroid muscles, by utilizing flexion, rotation and extension.

There are valuable chapters on the parathyroid and the thymus glands, the latter of which throws a new light on a little understood subject. Not generally known, the author points out, are Blackfor and Freligh's studies from the Mayo Clinic, which show that in 100 postmortems on fatal cases of Graves' disease, every patient under 40 years of age exhibited a hyperplastic thymus gland, as did 50 per cent of the patients over that age. He points out also the work of Hammar, which throws into the discard the general notion that the thymus gland atrophies early; actual atrophy does not begin under 15 years of age.

It is a curious omission that there is no mention in the whole book of the hepatic factor in thyroid disease, which many observers, of whom the reviewer is one, are now inclined to consider very important.

The book is excellently written from the standpoint of both clarity and interest. The arguments for both sides of debatable points—which still include most points in thyroid disease—are given with scrupulous fairness, though one is left in no doubt as to which the author himself accepts. There are no unsupported statements. The illustrations are well selected and carefully reproduced, and the diagrammatic exposition of the production of goiter (fig. 14) ought to be particularly useful for teaching purposes. The bibliography includes 254 references, in one sense rather a small number, but entirely adequate in view of the author's enormous personal experience. The bibliography by authors which follows the bibliography by order of reference is helpful. The next edition of the book might perhaps be improved by the addition of more recent contributions, for the sake of completeness even if they are not actually needed.

This book is as practical as it is scientific and comprehensive. It will be of value to any physician who in interested in dysfunction of the thyroid gland, and it ought to be read and pondered by every surgeon who undertakes to do thyroid surgery. A minimal mortality, as Sloan points out, of less than one per cent seems not an ultimate achievement in view of what has already been achieved. But at that, we doubt whether the utopian day will ever come to which he looks forward, when the "future will place simple thyroidectomy and tonsillectomy on the same plane as regards operative risks."

Frederick Fitzherbert Boyce, M. D.

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*Recent Advances in Cardiology*: By Terence East, M. A., D. M., F. R. C. P. and Curtis Bain, M. C., M. R. C. P. Philadelphia. P. Blakiston's Son and Co., 1936. pp. 350. Price $5.00

This latest edition of East and Bain's valuable book is more than its name indicates, as it incorporates not only advances in cardiology, but serves as perhaps the best and most practical brief manual on the subject. Those who were familiar with the earlier editions will find this volume greatly improved. The chapter headings may be listed to indicate its scope. Heart Failure; Treatment of Heart Failure; Coronary Occlusion and Myocardial Infarction; Angina Pectoris; Auricular Fibrillation and Auricular Flutter; Disorders of Conduction; Ectopic Disorders of Rhythm; Infections of the Heart and Aorta; Hypertension; Vascular Diseases; Peripheral Circulatory Failure; The Heart in Hyperthyroidism; The Heart in Pregnancy, Anesthesia and the Heart; The Heart in Anemia; Congenital Lesions; The Radiology of the Heart and Aorta; The Examination of the Heart with the Electrocardiograph; The Diagnosis of the Healthy Heart.

All the chapters are brief, and, of necessity, the treatment of the subjects discussed is sometimes inadequate, as in the case of electrocardiography, for example. Yet, with very few exceptions, so far as the reviewer is able to determine, the views expressed are sound. Certainly the interpretation of the numerous electrocardiograms is accurate.

It will inevitably happen that in a brief discussion of any large subject, the authors will omit some things which seem important to any reviewer. As instances of such omission may be mentioned: the physiological explanation of the action of digitalis in heart disease; the recognition of rheumatic mitral insufficiency as a frequent accompaniment of mitral stenosis; the recognition of arteriosclerotic heart disease as a clinical entity; and the useful electrocardiographic sign of arteriosclerotic (hypertensive) heart disease. This reviewer would like, further, to criticise the inclusion of figure 75, which shows a "composite normal electrocardiogram." This is a naive conception, for the picture is one which will never be obtained from any heart, and is valueless.

Richard Ashman, Ph. D.

*Intoduction to Materia Medica and Pharmacology*: By Hugh A. McGuigan, Ph. D., M. D. and Edith P. Brodie, A. B., R. N. St. Louis. C. V. Mosby Company, 1936. pp. 580. Price $2.75.

This book, intended for instruction of nurses, especially features "its approach through a groundwork of the fundamentals." In this respect, the historical development of medicine and pharmacy is traced in a manner which is thoroughly interesting and instructive. The pharmocological basis of therapeutics is presented as far as is practical in a book of this sort. The treatment throughout is clear and concise and is based on excellent authority. The material of the recent U. S. P. and N. F. is included and in most other respects the context is consistent with the more recent aspects of therapeutics. Some might prefer less conservatism in the selection of the newer drugs. For instance, the only barbiturates mentioned are barbital and phenobarbital while the shorter acting barbiturates are omitted. Similarly, only quinine and arsenic are mentined in the treatment of malaria; carbarsone is the only recent amebicide discussed and hexyl-resorcinol and tetrachlorethylene are omitted from the discussion of anthelmintics.

The price is unusually reasonable for a copiously illustrated book of this character and this should help to give this book the wide distribution which it clearly deserves.

R. P. Walton, Ph. D.

*A Text-Book of Pharmacology and Therapeutics or the Action of Drugs in Health and Disease*: By A. R. Cushny, M. A., M. D., LL. D., F. R. S. 11th ed., thoroughly revised by C. W. Edmunds, A. B., M. D. and J. A. Gunn, M. A., M. D., D. Sc., F. R. C. P. Philadelphia. Lea & Febiger, 1936. pp. 808. Price $6.50.

The recent publication of a new U. S. P. and N. F. is appropriately being followed by the appearance of a number of new books and revisions which deal particularly with drugs and drug therapy. Among this group the appearance of a revised Cushny is of particular interest since this is generally recognized to be "the first severely critical, rigorously scientific general text-book to be written in English by an experimental pharmacologist." That this book is peculiarly adapted to the conditions of student instruction is clearly evidenced by the wide distribution of its several editions. The character of this, the eleventh revision, is such that the book may be properly expected to increase still further in general usefulness.

Pharmacology texts and pharmacology courses are always confronted with more than ordinary difficulties in the matter of arrangement. Drugs can be grouped according to their chemical relationships, according to the physiological systems on which they act or according to their therapeutic applications. The arrangement here is based on each of these methods. Heavy metals, because of a chemical similarity, hypnotics because of a common therapeutic use. This policy of grouping based on expediency has been thoroughly successful in this particular case.

There are minor disadvantages from the standpoint of the American student and these can be attributed principally to the fact that the book is intended for both English and American distribution. For instance, the significance of the N. N. R. is barely mentioned and numerous proprietaries are included which are not Council accepted.

Specific examples of important revisions are the discussion of the new morphine derivatives, the protamine insulinate combination, the liver therapy of pernicious anemia, the cyanide antidotes, the newer amebicides and the more recent advances in vitamin and endocrine therapy. The extent and character of the general revision throughout is impressive.

R. P. Walton, Ph. D.

*William's Obstetrics*: By H. J. Stander, 7th ed. New York, D. Appleton-Century, 1936. pp. 1269. Price, $10.00.

This work, first published in 1903, has been one of the foremost text books in the field of obstetrics since the appearance of the first edition. It was last revised by Dr. Williams in 1930, one year before his death. The present revision has been prepared by Dr. Stander, who was associated with Dr. Williams for many years before accepting the chair of Obstetrics and Gynecology at Cornell. He is therefore thoroughly qualified for the task, and he has acquitted himself most creditably.

The general plan of the book has remained unchanged, but new chapters have been added on the subjects of hormones, urinary complications, and obstetrical analgesia and anesthesia. Its teachings remain predominatingly conservative. This is to be highly commended, especially as the book is so extensively used for the teaching of medical students. However, it is to be noted that the conservative attitude toward cesarean section in placenta praevia is regarded as ultra-conservative by many other present day teachers of obstetrics.

The section on the toxemias of pregnancy is especially outstanding, as is to be expected when one recalls the tremendous amount of work that has been done by Stander in this field. The reviewer cannot but feel, however, that from the viewpoint of the medical student, the fifteen and one half pages on the etiology of eclampsia could advantageously be condensed. The reviewer feels that in two other ways the usefulness of this work can be enhanced. One is by the elimination of details of varying views on controversial subjects, such as the formation of the lower uterine segment, with the multiplicity of quotations from various authorities. These rather verbose discussions tend to confuse the mind of the medical student. The other suggestion would be to transfer the discussion of pelvimetry from the section on contracted pelvis to the chapter on prenatal care.

The reviewer regretfully notes that the subject of birth injuries of the child is not discussed. In his opinion, this is a matter of considerable importance to the obstetrician. This is particularly true as regards intra-cranial hemorrhage, the differential diagnosis between this condition and simple asphyxia, and its treatment. Dr. Stander may feel that this is a pediatric rather than an obstetrical problem, but the reviewer is of a different opinion and believes that the obstetrician should be fully informed on this subject.

On the whole, however, this revision is a most complete and careful one, and brings this outstanding text book thoroughly up to date. One feels that it represents the last work in obstetrics, and is as complete as a single volume work can possible be. It is recommended without hesitation as a worthy successor to the many revisions edited by Dr. Williams himself.

E. L. King, M. D.

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*Text-Book of Physiology*: By William H. Howell, Ph. D., M. D., Sc. D., LL.D., 13th ed. Philadelphia, W. B. Saunders Co., 1936. pp. 1150. Price $7.00.

The popularity as well as inherent worth of a book is proved by the appearance of its 13th edition. The outstanding impression, however, is of similarity to older editions. Here and there, there are new figures and new material, e.g., on p. 199, the dog being conditioned; on p. 286, the discussion of nerve impulses from single end organs; on p. 511, the thermostromuhr of Rein; on p. 736, normal respiratory discharge in single fibers of the vagus.

While there is much information of value here for the beginning student of physiology as well as for the practitioner of medicine, the mode of presentation seems more particularly suited to elementary courses in physiology, such as are being given in many of our leading Colleges, than to medical men.

Henry Laurens, Ph. D.

## PUBLICATIONS RECEIVED

D. Appleton-Century Company, Inc., New York: Textbook of General Surgery by Warren H. Cole, M. D., F. A. C. S. and Robert Elman, M. D. Urology by Edward L. Keyes, Ph.D., F. A. C. S., F. R. C. S. and Russell S. Ferguson, A. B., M. D.

P. Blakiston's Son & Company, Inc., Philadelphia: Diseases of Infancy and Childhood by Wilfred Sheldon, M. D., F. R. C. P.

The Commonwealth Fund, New York: Brucella Infections in Animals and Man by I. Forest Huddleson. Snow on Cholera, Reprint of Two Papers by John Snow, M. D. Community Health Organization edited by Ira V. Hiscock. Papers by Charles V. Chapin, M. D. Recording of Local Health Work by W. F. Walker, Dr. P. H., and Carolina R. Randolph.

F. A. Davis Company, Philadelphia: Modern Treatment and Formulary by Edward A. Mullen, P. D., M. D., F. A. C. S. Applied Dietetics by Sanford Blum, A. B., M. S, M. D. Allergic Diseases by Ray M. Balyeat, M. A., M. D., F. A C. P.

Paul B. Hoeber Inc., New York: Keeping Your Child Normal by Bernard Sachs, M. D.

The John Hopkins Press, Baltimore: A Dissertation on the Sensible and Irritable Parts of Animals by Albrecht von Haller (London, J. Nourse, 1755).

Lea & Febiger, Philadelphia: Modern Urology in Original Contributions by American Authors edited by Hugh Cabot, M. D., LL.D., C. M. G., F. A. C. S. (2 vols.) Urological Roentgenology by Miley B Wesson, M. D. and Howard E. Ruggles, M. D.

The Macmillan Company, New York: Treatment in Psychiatry by Oskar Diethelm, M. D.

The C. V. Mosby Company, St. Louis: The Practice of Medicine by Jonathan Campbell Meakins, M. D., LL. D.

W. B. Saunders Company, Philadelphia: Medical Clinics of North America (St. Louis Number—September 1936). Bright's Disease and Arterial Hypertension by Willard J. Stone, B. Sc., M. D., F. A. C. P.

The Williams & Wilkins Company, Baltimore: Medical Classics compiled by Emerson Crosby Kelly, M. D.

The Year Book Publishers, Chicago: The 1936 Year Book of General Medicine edited by George F. Dick, M. D., Lawrason Brown, M. D., George R. Minot, M. D., S. D. F. R. C P., (Hon.) Edin., William B. Castle, M. D, A. M., M. D., (Hon.) Utrecht, William D. Stroud, M. D. and George B. Eusterman, M. D.

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# THE ORATION COMMEMORATING THE ONE HUNDREDTH ANNIVERSARY OF THE FOUNDING OF THE ARMY MEDICAL LIBRARY, WASHINGTON

SIR HUMPHRY ROLLESTON, BART, G. C. V. O., K. C. B., M. D.*
LONDON, ENG.

It is a very high honour as well as a most pleasant privilege to assist at the Centennial of the conception of the Library of the Surgeon-General's Office, United States Army, now containing more than a million items and the largest Medical Library in the world. George Adami (1914) described the Index-Catalogue and the Index-Medicus as America's greatest gift to medicine, and in his admirable paper The Centennial of the World's Largest Medical Library: The Army Medical Library of Washington, from which I have freely drawn, Major E. Erskine Hume, the late Librarian, tells us that Professor William H. Welch not only expressed a similar considered opinion in 1921, but at his last visit to the Library placed it above America's services in connection with anesthesia, the insect transmission of disease, and the development of Public Health Laboratories.

The transformation of medicine in America during the last twenty years of the nineteenth century and after was due to several causes; among others to the men of Billings' generation, especially Welch and Osler, to the example set by the John Hopkins University and Hospital, to the Library of the Surgeon-General's Office, its Index-Catalogue and the Index Medicus. The Johns Hopkins Hospital, the Library, its Index-Catalogue, and the Index Medicus were largely the offspring of Billings' energetic initiative.

### LIBRARIES

Libraries and Museums are important instruments in medical education and progress. They resemble each other as reservoirs of sound learning gathered from practical experience. This correlation of knowledge, shown by the oldest scientific museum in Great Britain, the Ashmolean Museum (1679) at Oxford, which was under the same roof as the library of natural history and philosophy, and also by the original British Museum (1754) in Bloomsbury, the Natural History part of the Museum being moved to South Kensington and opened in 1881, was confirmed, as regards medicine, by the Army Medical Museum which contains the Army Medical Library.

It may be interesting to note that by his will (1695) Anthony Wood left all his manuscripts and books to the Ashmolean Museum rather than to the Bodleian Library (founded 1598) of which he had been given the free run. Was this evidence of ingratitude and in conformity with his difficult temperament, or of an unsuspected broadmindedness?

Another resemblance is that verbal descriptions and illustrations in books and atlases reproduce specimens on the shelves of museums, and conversely complete accounts of such morbid specimens, the latter being "the original documents" (Keith), should include the clinical details.

The earliest repositories of records, the representatives of books, were either in temples because in all civilizations the priesthood has been *par excellence* the learned class, or in palaces, because rulers often patronized literature and art. Chambers for the storage of records in the form of inscribed tablets and cylinders of baked clay were discovered by Sir Henry Layard in 1850 in the Assyrian palaces of the Kings Sennacherib, Esarhadden and Ashur-bani-pal, going back to B. C. 700. The subsequent history of libraries in ancient Greece, Alexandria, Pergamos and Rome has been discussed by J. W. Clark.

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Museums, especially medical museums, were a more modern development. It is true that the first recorded institution to bear the name of museum (temple or haunt of the muses) was that founded at Alexandria about B. C. 300 by Ptolemy Soter (B. C. 367-283); but this did not conform to the modern meaning of the word, for it was an academy or meeting place for learned men (Flower). John Hunter's great collection in the eighteenth century exerted a powerful influence, as shown by the activities in the last century of Sir Astley Cooper (1768-1841) of Guy's Hospital, Sir Benjamin Brodie (1783-1862) of St. George's Hospital in London, by Sir Henry Acland (1815-1900) who from 1845 taught the preliminary medical sciences with the help of a museum at Oxford, and by Sir George Humphrey (1820-96) who adopted the same method in Cambridge. The relative importance attached to medical libraries and museums, has varied to some extent from time to time, no doubt as a result of the enthusiasm of prominent authorities. Physicians have usually turned more to libraries, and surgeons have done more for museums, but this is far from being a rigid rule. Rarely has the same man whole-heartedly and equally promoted them both; such, however, were the physicians Sir Hans Sloane (1660-1753), President of the Royal Society and of the Royal College of Physicians of London, whose collections of natural history, objects of virtu (69,352), books (50,000), and valuable manuscripts formed the nucleus of the British Museum, and Sir William Osler (1849-1919) whose generosity to many libraries, especially to his alma mater, Montreal, and his advocacy of medical museums is known to all.

About the middle of the last century the formation of museums was more keenly carried out than that of libraries, and may have represented a healthy opposition to mere traditional authority, and have been inspired by a preference for an appeal to the visible evidence or in obedience to John Hunter's admonition to Edward Jenner "Don't think, try". This advice is equally, if not even more, applicable now that functional disorder in medicine has taken a part, formerly almost monopolized by morbid structural change. The use of the experimental method in the elucidation of disease has tended to transfer the illustrations of disease from the pathologic museum to the laboratory.

Medical libraries a century ago were generally those of individual medical men and, as in the case of the famous libraries of Richard Mead (1673-1754) and Anthony Askew (1722-74) in the previous century, were often sold and dispersed after the death of the owners. Those of institutions left much to be desired, as Billings found to his discomfiture in 1860 in the United States. In the seventies of the last century when the Surgeon-General's Library was coming to its second birth and rapid growth, the idea of medical libraries was stirring in North America, and in some instances, such as at Boston, quickened after a somewhat remote conception, and very probably by the activities of Billings.

It is surely quite unnecessary to attempt to preach to the converted on the value and inspiring virtue of medical libraries, for this has been so conclusively set forth by Billings, by Oliver Wendell Holmes (1809-94) at the first opening of the Boston Medical Library in 1878, by Osler in Books and Men, also at the Boston Medical Library when a new building was opened in 1901, and in 1926 at Cleveland in the charming address The Doctor and His Books by Professor Harvey Cushing, Osler's greatest pupil, who could so convincingly have shown here and now how well that tradition has been maintained.

### THE ARMY MEDICAL LIBRARY

The laymen in the street might be puzzled to explain why and how it came about that the Surgeon-General of an Army, however great, should have such a library as this attached to his office which is devoted more to active organization and orders than to medical bibliography, ancient and modern. The answer, clear to everyone here, is the personality of John Shaw Billings of the Surgeon-General's Office and the creator of its library. Originally a small collection of reference books for the use of the Surgeon-General (Joseph Lovell) in his office at Washington, it long remained in a state of suspended animation. In 1840 a manuscript catalogue listed 135 works (228 volumes); at the outbreak of the Civil War (1861) the number of volumes was between three and four hundred; on May 10, 1864, seven and a half months before Billings came on the scene as the first person to be in any way, for he was only nominally not officially, responsible for the books, a printed catalogue showed a total of 1365 volumes; in another printed catalogue dated October 23, 1865, the number had risen to 2258. Growth then became rapid; in 1868 the sum of eighty thousand dollars left over from the Funds of Civil War hospitals was made available for the library, Billings being given discretionary powers; and on June 12 of that year a printed catalogue referred to 6066 volumes, showing that Billings had not lost any time in building up the Library; in 1871 a Catalogue, published 1872, ran to 454 pages and showed that the number (13,380) had doubled. In 1873 a printed catalogue of 2468 pages in three volumes, the first two arranged under the heading of authors only, and the third containing anonymous works, transactions, reports, and periodicals, came out under Billings' direction. The Library then contained 25,000 volumes and 15,000 separate pamphlets. It may be safely assumed that Billings was now steering straight towards the great conception ultimately achieved by the Surgeon-General's Library and its Index-Catalogue. In 1876 the Library contained forty thousand volumes and as many pamphlets, and in 1895, when he retired, the number had increased to 308,445.

Besides books, pamphlets, the valuable collections of 450 out of the estimated 600 medical incunabula (books printed before 1500), and of Paris theses unrivalled even in their native city, the Library has five thousand portraits of medical men, and a collection of medical autographs, to which Abraham Jacobi and Garrison made generous contributions. The Army Medical Library stimulated beneficial imitation, which charitably began at home, for in 1929 there were 200 medical libraries in the United States as compared with 118 in Europe (Garrison).

From 1865 to 1887 the Army Medical Museum, not a fire-proof building which contained the Library, occupied the old Ford's theatre in which Abraham Lincoln had been assassinated on April 14, 1865. This soon became quite inadequate, and Billings, rising to the occasion, obtained funds, Congress appropriated two hundred thousand dollars for the construction, according to his plans, of the present home of the Army Medical Museum, of which he was also curator, and of the library at the corner of Seventh Street and B Street (now Independence Avenue) S. W. This was successfully carried through in time to receive in 1887 the ninth International Medical Congress held at Washington.

History repeats itself, and the Army Medical Museum, up till 1922 always called the Library of the Surgeon-General's Office, has now, as happens sooner or later to active libraries, been faced for some time with the impossibility of further expansion on its present site which indeed is now wanted for the further development of Washington (Reynolds). What better way of celebrating the commencement of the second century of the Library could there be than the erection of a new building so urgently needed and so thoroughly deserved?

The following is the list of the Librarians:

Col. J. S. Billings (1868-95)
Col. D. L. Huntington (1896-7)
Surgeon J. C. Merrill (1898-1902)
Major Walter Reed (1902, died in office)
Brigadier-General Calvin De Witt (1903)
Brigadier-General W. D. McCaw (1903-13)
Col. C. C. McCulloch, Jr. (1913-18)
Brigadier-General F. A. Winter (1918-19)
Col. P. E. Straub (1919)
Major-General R. E. Noble (1919-24)
Col. J. M. Phalon (1924-27)
Col. P. M. Ashburn (1927-32)
Major Edgar Erskine Hume (1932-6)
Col. Harold W. Jones (1936- ).

The average tenure of the first thirteen librarians works out at five years, the extreme being 27 years (Billings) and one year or less in the case of Walter Reed and others. To the high qualifications of his twelve predecessors Major Erskine Hume has paid a graceful tribute. Dr. Beatrix Bickel, who joined the library staff in 1930, was in the following year given the title of chief librarian and is now the first assistant to the librarian.

### THE INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE

A Library is obviously a great and essential factor in the preservation of knowledge and history. It has, however, been rather pessimistically said that a library is a mausoleum where knowledge lies dead and mummified; this may be real danger unless it is activated and kept alive by a guide to its contents. A library is not complete without a good catalogue, namely one with the double entry of author and subject; and it is obvious that the larger the library the more fully will such a catalogue afford access to existing knowledge, especially when printed and distributed widely to other libraries. The Army Medical Library is the largest of its kind, and more current periodicals are devoted to medicine than to any other branch of science. As long ago as 1887 the Library of the Surgeon-General's Office obtained annually 700 published medical periodicals exclusive of those devoted to pharmacy and to dentistry. Since then they have become much more numerous; at the end of 1912 the total number of current periodicals were estimated at 1654 (C. P. Fisher); the Library received 1895 annually in 1916, the number fell to 1240 in 1920, but rose to 1925 in 1927 (Garrison, 1929), and now is about 1800. Medical journals vary in their span of life; some are quite ephemeral and there appears to have been a considerable mortality during the World War. Their fluctuating population is compatible with Bulloch's estimate that of the 23,000 items in the World List of Scientific Periodicals, covering the years 1900-31, 5000 were medical. The bibliographical scope of the Index-Catalogue is therefore phenomenal, and the widespread appreciation of its help is graphically shown by the worn state of the original bindings, or by new bindings, of its volumes in the medical libraries of Europe.

How does the Index-Catalogue compare with previous medical bibliographies which Osler (1913) optimistically prescribed as the best "float through posterity", for the authors? Conrad Gesner (1516-65), "the father of bibliography" supplied what was in some respects the model for the Bibliotheca Osleriana (1929), hailed by Professor John Fulton "as the greatest achievement of the humanistic movement in medical bibliography". Albrecht von Haller (1708-76), the greatest medical bibliographer of the eighteenth century, dealt with botany, anatomy, physiology, surgery and medicine. W. C. Ploucquet (1744-1814) of Tubingen attempted to provide a complete catalogue of medical literature in his Initia Bibliothecae medico-practicae et Chirurgicae realis (1793-7). Robert Watt (1774-1819) of Glasgow, published in 1812 for the guidance of his students at the Royal Infirmary, A Catalogue of Medical Books. This led to his ambitious and posthumous Bibliotheca Britannica, or a General Index to British and Foreign Literature, in four volumes in 1824, covering law and other subjects in addition to medicine, thus reverting to the status of the scholar-physicians in the sixteenth century when medicine and the natural sciences formed part of the equipment of learned men. The labour thus entailed is said to have been responsible for the death of Watt and later of two of his sons. Thomas Young (1773-1829), physicist, Egyptologist, and physician, the most comprehensive genius and man of science who ever entered the medical profession, brought out in 1813 An Introduction to Medical Literature, including a System of Practical Nosology. A. C. P. Callisen (1787-1866), a Danish surgeon, in the 33 volumes of his Medicinisches Schriftstellen-Lexicon (1830-45) dealt exhaustively with medical publications from the middle of the eighteenth until the end of the first quarter of the nineteenth century. A comic relief to these many-volumed works might be supplied by the Medical Bibliography (1834) of James Atkinson (1759-1839) of York who gave up the task after the letter B, and it has been shrewdly suspected that he never had any intention of carrying it further (Ruhrah). It abounds in witticisms after the manner of Sterne's Tristram Shandy and has earned for him the title of "a disciple of Rabelais" and as well qualified for residence in the Abbey of Theleme.

Without in any way detracting from the services of these bibliographical fathers it is obvious that the life of a Government Department of public institution is potentially perpetual and not limited by the relatively short span of an individual life. Other medical bibliographers were described by Osler as Lilliputian as compared with the Gargantuan character of the Index-Catalogue.

Among bibliographies that of medicine now takes a very high, if not the highest, place; as so largely responsible for bringing this about, the Index-Catalogue of the Library of the Surgeon-General's Office, which is beyond any comparison the most exhaustive medical bibliography ever undertaken, and the Index-Medicus have made the whole medical world, especially English-speaking readers, hopelessly insolvent debtors. This far-reaching obligation must be most gratefully, and humbly, acknowledged.

The history of the Index-Catalogue began in Billings' brain from his experience in 1860 when the need for such a bibliography was painfully forced on his notice, and it is probable that he began to form plans after being given in 1868 a practically free hand with the fund of eighty thousand dollars; the catalogues published in 1872 and 1873 led up to the definite proposals in 1876 contained in his Specimen Fasciculus of the National Medical Library, under the Direction of the Surgeon-General, United States Army. This was submitted widely to universities, libraries, and medical men for criticism and suggestions. It was arranged under both authors and subjects, and so far-seeing that its style and arrangement were practically those subsequently adopted in the Index-Catalogue. It was warmly welcomed in his dedicatory address at the opening of the Boston Medical Library in 1878 by Oliver Wendell Holmes who correctly prophesied that a liberal appropriation by Congress to carry out such a work for this advancement of sound knowledge and the improvement of human conditions would greatly redound to the honour of the nation.

The first series of the Index-Catalogue began in 1880 when Congress, then urged by Abraham Jacobi (1830-1919) made the first appropriation for this purpose, and its sixteen volumes came out yearly, closing in 1895: it indexed 85,663 author titles; 151,504 pamphlets; of subject titles 168,587 books, and 511,112 journal titles. It was edited by Billings who in the last volume spoke of it as a "labour of love" with the cooperation of Fletcher who supervised the proof-reading and devised the abbreviations of the periodicals. As criticisms of an adverse character of the Index Catalogue have been extremely rare, reference may be made to what Billings said in 1891, when the first twelve volumes of the first series had been published; namely, that the chief serious errors were those of omission and that of these about fifty had so far been detected. In the final volume Billings gave a list of the errors, and remarked that "there are few medical writers now living who have not sent to the library at least one pamphlet." In the vast volume of the second series (1916) the Librarian, Lieutenant-Colonel C. C. McCulloch, Junior, repeated this statement with a wider application to all members of the profession; namely, that "few physicians have not donated some book, pamphlet, or reprint of their own composition."

The second series consisted of 21 volumes which were issued between 1896 and 1916, and were edited by Robert Fletcher until his death in 1912 and was completed by Garrison and Allemann.

The third series (1918-32) consisted of ten volumes and indexed medical literature up to the end of 1925, under the direction of Albert Allemann who was principal assistant librarian from 1922 to 1932.

The Fourth Series. At one time it was arranged that the Index-Catalogue should come to an end with the third series. This would have been a bibliographical catastrophe of the first magnitude and have required some corresponding substitute, such as a clearing house of knowledge under the League of Nations a suggestion made in the British Medical Journal in 1929. But fortunately in the following year anxiety was relieved by Surgeon-General M. W. Ireland who, after receiving and considering opinions from various sources, announced that another series would at once be undertaken. In the recently issued first volume of this fourth series some changes have been made: the abbreviations have been shortened; in the references the volume numbers are in Arabic instead of Roman, the Arabic numbers being printed in bold face-type, and the use of eponymous titles in the nomenclature of diseases is avoided as far as possible, an example which it is hoped will be widely followed. An important factor in the success of the Index-Catalogue has been the way in which the difficult task of separating the chaff from the wheat has been carried out. The decision of what articles should be included has probably presented less difficulty from that of exclusion, for a paper manifestly unorthodox and badly expressed may yet contain an idea or observation destined to be most important.

### THE INDEX-MEDICUS

This famous and invaluable monthly bibliography of the world's medical publications, though long a close companion and immediate supplement of the Index-Catalogue, was never an official government periodical, and therefore depended for financial support on its sales, thus causing its devoted editor, Fletcher, much business worry. In Garrison's words (1913) "the work of copying out the library cards for redaction was parcelled out, as the celebrated Haller did with his eighteenth century bibliography of medicine, among the wives and daughters of the library force as private work". It became a sort of annual Index-Catalogue in miniature (Garrison, 1915) and, like the larger work, had a double entry of subject and author. Starting in January 1879, a year before the first volume of the Index-Catalogue appeared, it came out monthly until May 1899 when it sank in financial deep water; for, in spite of the help it gave medical writers, its subscription list was never large, much less sufficient to meet the expenses of publication. Many of us, it must be feared, regarded the Index-Medicus and the Index-Catalogue, as natural blessings, like fresh air and sunshine, and did not realize that gratitude should take a more practical form than passive expectation of their continuance. Three more volumes (1900-2) were brought out under the title Bibliographia Medica (Index Medicus) in Paris with the support of C. Petain (1825-1901), G. Debove (1845-1920), Charles Richet (1850-1935) with Marcel Baudouin (1860- ) as editor-in-chief. In 1903 the Index-Medicus was given a fresh lease on life by the wise generosity of the Carnegie Institute of Washington which had been incorporated in 1902 with Billings as vice-chairman of the Board of Trustees. The Index-Medicus continued until 1927 when it was amalgamated with The Quarterly Cumulative Index to Current Medical Literature, published since 1916 by the American Medical Association, under the title of The Quarterly Cumulative Index Medicus, the Carnegie Institute and the American Medical Association both giving their support. Billings and Fletcher edited the twenty-one volumes of the first series (1879-99), and Fletcher, who had previously been mainly responsible for the editorial arrangements, was editor-in-chief for the nine years 1903-12, with the active help of Garrison who completed the second series (1903-20) without any co-editor. The third series (1920-26) was edited by Garrison and Albert Allemann who both joined, as associate editors, the Board of The Quarterly Cumulative Index Medicus, Garrison resigning in June, 1929, a year before he was retired from the active list of the Army.

### LIBRARIANS

Like many other lovers of literature, whole-time librarians usually lead secluded lives outside the ambit of the limelight. The ideal librarian is a saintly, self-denying character with a keen interest not only in books but in their would-be readers, whose time he saves thereby helping them, rather than himself, into print and prominence. He thus obeys the precepts and follows the example of Henry Bradshaw (1831-86) librarian (bibliothecarius) of the University of Cambridge, England, from 1867 to 1886; this particular office, it may be mentioned, was for three centuries (1278-1577) held by the University chaplain, an arrangement hallowed by ancient tradition and so possibly appropriate as combining the care of the soul with that of the mind, and indeed from the point of view of financial economy, but not from other practical considerations. Librarians in medical libraries often play a ghostly part in the construction of books and papers.

The number of medical men who have been whole-time librarians of medical libraries is small; but in the United States what may have been lacking in quantity has been more than made good by quality. To three bibliographer-librarians of the Army Medical Library tribute is most justly due, (T. Carlyle), Billings, Fletcher, and Garrison: for, like the history of the world, that of this great library is the biography of its great men.*

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## THE TREATMENT OF ACUTE INTESTINAL OBSTRUCTION*

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The subject of this address was selected because I regard it as one of our major problems, for the reason that it is essentially a surgical problem and for the reason that it is a clinical problem which offers marked opportunity for improvement in our end results.

Since the dawn of the era of abdominal surgery, a remarkable decrease in the mortality rate of abdominal disasters has occurred. Only in the last five years can any similar improvement be boasted of in the surgery of intestinal obstruction.

In 1888 intestinal obstruction was a major subject of discussion at the meeting of the American Association of Physicians and Surgeons. Two celebrities of that day led the discussion, Dr. Nicholas Senn and Dr. Reginald Fitz, Dr. Senn presenting the surgical aspects and Dr. Fitz the medical views. It was the consensus of the meeting that "when after two days of medical treatment no improvement had resulted, recourse then should be had to surgery". Today it is universally conceded that when the diagnosis is made the patient should be subjected to surgical therapy. Despite this general acknowledgment that surgery is the only rational and possible treatment, the results in acute intestinal obstruction are still at best deplorable.

The trouble is that in a lamentable number of cases our practice does not accord with our theory. It is the late diagnosis due to the failure of the medical man to appreciate and evaluate properly the early warning signs of abdominal pain, vomiting, blocked bowel and audible peristalsis that finally results in an operation which, in most instances, is just a gesture of despair and which operation, unfortunately, in many instances, is performed by an operator who does not appreciate the essential pathology, who is not cognizant of the disturbed physiology and who, as a consequence, fails to appreciate the essential postoperative therapeutic indications.

What, then, are necessary and ultimate factors in the production of an improved mortality rate?

1. Early diagnosis.
2. A simpler clinical classification of the pathology.
3. A therapy in harmony with present day knowledge of the disturbed physiology.

### THE EARLY DIAGNOSIS

The conclusion of the whole matter is that the prognosis and rationale of treatment is dependent upon the time element. By that I mean the elapsed time from onset to the institution of surgical treatment. The diagnosis of intestinal obstruction is essentially a clinical problem. The onset and chronological order of symptoms and signs are characteristic: (1) Abdominal pain, colicky in character, followed by (2) vomiting, (3) audible peristalsis, (4) blocked bowel and (5) normal temperature, constitute the five cardinal signs of acute intestinal obstruction. No instruments of precision or refined laboratory methods are required. A clinical thermometer and an enema can are the only indispensables. A carefully taken history and physical examination are fundamental. The very hour of onset is announced. The primary warning sign, colicky pain, is repeated every few minutes and soon followed by vomiting. Woe unto the patient and shame unto the physician when these warning proclamations are silenced by a hypodermic injection of morphine or aggravated by the administration of purgatives. As so well expressed by the late Dr. C. Jeff Miller[1], "Morphine produces a false sense of security on the part of the patient, and puts a screen in front of the signs. Better that the physician busy himself with determining the cause of the pain rather than with its alleviation. This is not always easy. The patient cries out with pain; the anxious relatives demand that something be done. The humane physician is sorely tempted to give morphine but this in one set of circumstances in which nihilism is true wisdom." "Purgatives," as Dr. William D. Haggard[2] well observes, "simply compound the felony of delay." By increasing a peristalsis that is already too active, they serve to augment the distention of an already distended bowel and to increase bacterial activity, while if the stomach, and very properly, refuses to tolerate them, the body, as a result of increased vomiting, is still further depleted of its fluids.

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*The last portion of Sir Humphry's oration consists of a most interesting biographic sketch of Billings, Fletcher and Garrison. Unfortunately lack of space prevents the publication of these relatively short biographies.

*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

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### A SIMPLER CLINICAL CLASSIFICATION OF THE PATHOLOGY

One of the most far-reaching advances in the approach to the problem of acute intestinal obstruction has been the recent endeavor of surgical pathologists and surgeons toward a simpler clinical classification. There are so many etiologic factors and so many types to consider pathologically that one becomes bewildered and confused when at the bedside of the individual patient. The point of view is simplification of etiologic factors so that proper treatment immediately suggests itself. Wangensteen[3] has given us such a clinical classification. In it he groups the twenty odd causes of acute intestinal obstruction into four groups.

- I. Mechanical Type
  - (a) Due to narrowing of lumen
    - 1. Congenital—atresia.
    - 2. Acquired—stricture.
  - (b) Neoplasm
    - 1. Of the intestine
    - 2. By compression from without or within
  - (c) Miscellaneous
    - 1. Gall stones
    - 2. Foreign bodies.
- II. Adhesive Type
  - (a) Inflammatory — traumatic
  - (b) Congenital
- III. Strangulation Type
  - (a) Hernia
  - (b) Volvulus
  - (c) Intussusception
  - (d) Vascular lesions
    - 1. Mesenteric thrombosis
    - 2. Buerger's disease.
- IV. Ileus Nervous Type
  - (a) Paralytic—adynamic
  - (b) Spastic—dynamic.

Observing this classification, one can readily see how a reasonably accurate inference at the bedside and a more reasonably accurate classification on the operating table can be made and that the means of "mechanical relief" suggests itself in a given case.

### THE DISTURBED PHYSIOLOGY

One of the most important aspects of this problem, the study of which has contributed most to a rational therapy and better results, is the knowledge of the disturbed physiology. "Only recently is the view gaining acceptance that the final factors in acute obstruction are usually edema and spasm of the gut. There is ample evidence that the edema and spasm at the site of obstruction accountable for the acute stage need be only temporary, for no other basis can the history of previous obstruction crises with spontaneous recovery or after enterostomy be explained" (Bartlett[4]). Edema and spasm, producing blockage, followed by distention of the intestinal wall and the consequential vascular changes of distention, producing a reverse peristalsis (clinically manifested by vomiting) with the final result of water loss, dechlorination and toxemia, constitute essentially the pathology of acute intestinal obstruction.

A great deal of confusion has existed as to the mechanisms and clinical factors which are responsible for the so-called toxemias associated with intestinal obstruction. Broadly speaking, two main theories of the causative factors in the toxemias have been supported both by clinical observation and animal experimentation. One theory has placed the emphasis upon a toxin or toxins originating in the intestine or in the intestinal contents above the obstruction (Cannon and Murphy,[5] Whipple and Stone[6]). The other theory has emphasized the chemical and physical changes occurring in the blood and other tissue secondary to vomiting, which is so characteristic of the condition. (Haden and Orr[7], Gatch, Trussler and Ayers[8], Burgess, Walsh and Ivy[9]).

The toxin theory of obstruction toxemia has lately been subordinated to the view that toxic symptoms are explicable in terms of altered salt and water concentration in the blood and other tissues.

The chemical changes which occur in the blood as a result of intestinal obstruction are explicable in terms of the degree of interference with normal reabsorption of digestive secretions. Excessive vomiting removes not only large quantities of water, but also electrolytes, principally chlorides and fixed base. The relative excess of sodium radicals in the blood makes possible retention of more carbon dioxide as bicarbonate and thus accounts for the observed rise in $CO_2$ combining power of the plasma. As a result also of the vomiting, a large amount of fluid is lost, resulting in concentration of the blood plasma and the interstitial body fluids are drawn upon heavily and the diminution of these fluids is reflected in the dry skin and shrunken subcutaneous tissues (dehydration).

The viscosity of the blood may be so increased that a tenfold reduction in the volume flow may occur. This viscosity must interfere seriously with the respiratory and other functions of the blood, and depress renal activity. Indeed, a consistent finding in obstruction is an increase, up to 1000 per cent, in the blood N. P. N., this increase being chiefly in the urea fraction. It seems certain that this increase in blood N. P. N. is not altogether or mainly a retention phenomenon. Despite the diminished renal function,there is an increase in nitrogen excretion which may be four or five times the normal. These facts are indicative of an intensive increase in tissue destruction. Dehydration of the tissues is the most likely explanation, although the action of some circulating toxic factor is not precluded. Based on this chemistry, a rational therapy has been developed which promises the greatest advance yet attained in intestinal obstruction. I will speak of it as replacement therapy.

The epochal work of Haden and Orr[7] in 1923 showed that the administration of saline solution (NaCl) in simple obstruction could prolong life until death resulted from starvation. It is of particular interest that distilled water alone or solutions of dextrose and salts other than sodium chloride are not effective in preventing dehydration and other typical blood and tissue changes associated with obstruction.

So speaking chemically, reduction in blood chloride, increase in blood N. P. N. and $CO_2$ combining power are manifestations of intestinal obstruction with vomiting. A knowledge of these chemical factors is necessary for an understanding of the problem and for the direction of intelligent postoperative treatment.

What are the indications for treatment, taking the cases as they come, some early, most late, some too late? There are two general basic principles to be complied with, namely, first, mechanical relief and second, replacement therapy.

The means of mechanical relief include section of bands, resection, enterostomy and cecostomy, and colonic tube drainage, for a long time standardized methods, and recently, suction siphonage (Wangensteen[10]).

Replacement therapy includes the judicious use of sodium chloride, dextrose and water. The type and character of treatment will depend upon: (1) the elapsed time (i. e. from onset to time of rational therapy, operation); (2) the site, upper, middle or lower third obstructions; (3) the nature of the original lesion; (4) the physiologic status of the intestine and finally, (5) the chemical and metabolic status of the patient.

It must be very evident that the successful surgeon must give thought not only to the fact of obstruction, but to its underlying cause and type, its probable duration, with consequential changes in the intestinal wall and the chemical and metabolic status of his patient before he can possibly outline a successful plan of therapy.

Let me here repeat: The essential pathology of acute intestinal obstruction is: Edema and spasm producing blockage, followed by distention of the intestinal wall and the consequential vascular changes of distention, producing a reverse peristalsis (clinically manifested by vomiting) with the final result of water loss, dechlorination and toxemia.

In combating this pathology, let me call your attention to the advantages of: first, continuous suction siphonage (Wangensteen) of the upper gastrointestinal tract; second, the necessity for controlled replacement therapy during its use; third, the advantages of enterostomy done according to the Witzel technic and, fourth, the value of morphine judiciously used.

The immediate necessity is obviously twofold: first, to empty and to keep continuously empty the obstructed intestine of fluid and gas in order that structural damage to the bowel wall may be avoided, tonus recovered and spasm and edema allowed to subside. In other words, continuous intestinal deflation. Second, the prevention of a fatal chemical derangement by replacement therapy.

The Wangensteen apparatus (suction siphonage) fulfills the first indication beautifully. The continuous administration intravenously of saline solution (NaCl) and glucose fulfills the second. The variation in the amount of NaCl is governed by the plasma chloride needs. Calories are supplied by the glucose, and water balance is maintained.

High obstruction, pyloric, at site of gastrojejunostomy, adynamic ileus and dynamic (spastic) ileus lend themselves beautifully to this type of therapy. Enterostomy (Witzel technic) in low obstruction accomplishes the same purpose in continuous intestinal decompression and prevents structural changes in the gut wall with the additional advantage of the possible introduction of nutriment.

There are cases in which suction siphonage and enterostomy in combination are indicated; particularly is this true in late low obstructions.

As a means of preoperative preparation in late bad risk cases, suction siphonage with replacement therapy has a place, as illustrated by a recent case admitted five days after onset, vomiting intestinal contents, great abdominal distention, pulse 160, subnormal temperature, low blood pressure (90/60), blood chlorides 260, N. P. N. 60, scanty urine with the listless sunken eyes, the facies indicative of approaching dissolution. Strange to relate, within a few hours after the institution of suction siphonage with the Wangensteen apparatus and replacement therapy with hypertonic saline solution, the entire picture was changed. Vomiting ceased, distention was gradually relieved, the temperature rose to normal. The urinary excretion rose to 2000 c. c. daily, the blood chlorides rose to 475, the N. P. N. fell to 30, the pulse rate at the end of five days was 90 and the patient was converted into a safe elective case for operation.

In strangulation types, as hernia, intussusception, volvulus, mesenteric thrombosis, immediate operation is indicated. Relief of strangulation and exteriorization in non-viable types rather than resection is advocated followed by replacement therapy.

As to morphine, it has long been believed and taught by a majority of clinicians that opium and its alkaloids relax gastrointestinal spasm and stop all peristalsis. Today we must forget this age old concept.

As demonstrated by Thomas G. Orr[11] and reported by him "Morphine and related opium derivatives when given hypodermically stimulate the tone, rhythmic contractions and in some degree peristaltic waves of the small intestine for a period of at least six hours". To prevent overdistention of the small intestine, morphine is indicated in the treatment of acute peritonitis, intestinal obstruction and so-called paralytic ileus. The maximum clinical benefits can be obtained only by giving morphine in sufficent dosage to produce continuous narcosis. By maintaining the tone and rhythmic contractions of the small intestine with morphine, distention is controlled and disturbance of the bowel circulation is prevented during the course of the disease until the cause of the bowel distention is overcome by the natural defensive powers of the patient."

These concepts being true, the use of morphine is logical in peritonitis, paralytic ileus and bowel obstruction to prevent overdistention; so its action is synergistic with suction siphonage and enterostomy in maintaining continuous decompression and preventing structural changes in the intestinal wall. In addition to this action on the bowel, morphine relieves pain, restlessness, apprehenson and the discomfort of thirst, thereby conserving the patient's strength and preventing exhaustion of the kinetic system.

I submit for your consideration the following routine orders in force in the Department of General Surgery at the Memphis General Hospital effective since January 1934, which embodies the ideas expressed in this paper:

### Chart 1

#### ON ADMISSION:

History—physical examination.

Flat x-ray film of abdomen.

Blood—complete count, chlorides, N. P. N. and $CO_2$—(No delay awaiting reports).

Clinical diagnosis—probable type—mechanical, adhesive, strangulation, nervous—call attending surgeon.

Institution of suction siphonage (Wangensteen).

Administration of morphine (after Wangensteed).

To operating room—if operable.

#### IF NOT OPERABLE:

Institution of continuous intravenous saline-glucose solution (5 per cent in normal saline) and to operating room when operable.

Operation—anesthetic—spinal—when no positive contraindication.

Coeliotomy—exploratory — determination of type where not detrimental to patient.

Enterostomy—(Witzel technic) in lower one-third obstructions, as near as possible to point of obstruction.

Strangulation type—viable—mechanical relief and enterostomy.

Non-viable—mechanical relief, exteriorization and enterostomy.

#### POSTOPERATIVE CARE:

1. Continuous suction siphonage with daily estimation of water loss.

2. Continuous intravenous saline-glucose solution 3000 to 5000 c. c. daily checked by daily plasma chloride determination.

3. Daily urinary volume determination.

4. Morphine q. s. q. 4 hours for a period to be determined by the exigencies of the case.

Under this plan of management I present the results in the treatment of 148 cases at the Memphis General Hospital during the past two years (March 1934 to March 1936). The mortality rate was 35.4 percent, comparing very favorably with our past 10 years' statistics.

### Chart 2

| Year | Race | | Sex | | Results | | | |
|---|---|---|---|---|---|---|---|---|
| | Black | White | Male | Female | Recovered | Died | Total | Mortality |
| 1923 | 51 | 5 | 34 | 22 | 22 | 34 | 56 | 60.70% |
| 1924 | 30 | 3 | 23 | 10 | 15 | 18 | 33 | 54.54% |
| 1925 | 37 | 10 | 31 | 16 | 23 | 24 | 47 | 51.08% |
| 1926 | 29 | 9 | 25 | 13 | 15 | 23 | 38 | 60.50% |
| 1927 | 39 | 12 | 30 | 21 | 27 | 26 | 53 | 49.05% |
| 1928 | 53 | 10 | 38 | 25 | 31 | 32 | 32 | 50.79% |
| 1929 | 55 | 12 | 48 | 19 | 36 | 31 | 67 | 46.26% |
| 1930 | 47 | 10 | 35 | 22 | 31 | 26 | 57 | 45.60% |
| 1931 | 59 | 18 | 56 | 21 | 42 | 35 | 77 | 45.32% |
| 1932 | 70 | 20 | 62 | 28 | 43 | 47 | 90 | 52.22% |
| Totals | 470 | 109 | 382 | 197 | 285 | 296 | 581 | 50.94% |

Chart 2 shows a survey of 581 cases of acute intestinal obstruction in the Memphis General Hospital during the 10-year period, from 1923 to 1933 inclusive, by one of our attending staff, Dr. Morton J. Tendler. The mortality rate is 50.94 per cent—as good or as bad as that of most of the larger clinics for the same period.

I think it fair to state that these statistics are compiled from the services of some sixteen attending surgeons, assisted by a house staff, working in a general charity hospital whose clientele is from the lowest social strata. It is also fair to state that during the pursuit of this

Memphis General Hospital
Cases of Intestinal Obstruction
March 1934—March 1935

Chart 3

| Cases | |
|---|---|
| Recovered | 31 |
| Deaths | 20 |
| Total | 51 |
| Mortality Rate | 39% |

| | Recovered | Deaths |
|---|---|---|
| Cases operated | 13 | 16 |
| Cases not operated | 18 | 4 |
| Totals | 31 | 20 |

Elapsed Time

| | Recovered | Deaths |
|---|---|---|
| 4 or more days | 3 cases | 10 cases |
| 3 days | 7 cases | 10 cases |
| 2 days | 4 cases | 0 cases |
| 1 day or less | 17 cases | 0 cases |
| Shortest time | 5 hours | 8 hours |
| Longest time | 11 days | 8 days |
| Average time | 2 days | 3¼ days |

| Types | | Recovered | | Deaths |
|---|---|---|---|---|
| Mechanical | None | | None | |
| Vascular | 2 cases | Strangulated Inguinal Hernia—48 and 12 hours | 1 case | Mesenteric Thrombosis—8 Hours |
| | 1 case | Intussusception—30 hours | 2 cases | Strangulated Hernia 24 and 48 Hours. Non-viable—Exteriorization |
| | 1 case | Volvulus—60 hours | 1 case | Intussusception—5 Days |
| Ileus | 1 case | 48 hrs. Post Appendectomy Op. S. S.: R. T.—4 Days | 1 case | 5 Yrs.—Admitted with Acute Appendicitis 72 Hrs. Lived 31 Days |
| | | | 1 case | 13 Mos. Ileus After Umbilical Herniotomy. No. S. S. R. T. |
| Adhesive | 22 cases | Post Op. Adhesions | 10 cases | Post Op. Adhesions |
| | | | 2 cases | Congenital Adhesions |
| Undetermined | 4 cases | | 2 cases | |
| Totals | 31 cases | | 20 cases | |

Chart 3 shows the results in 51 cases during the year 1934 with a mortality rate of 39 per cent.

### Memphis General Hospital

### Cases of Acute Intestinal Obstruction

### 1935-1936

### Chart 4

| Number of Cases | |
|---|---|
| Recovered | 66 |
| Died | 31 |
| Total Cases | 97 |
| Mortality Rate | 31.9% |

| | Recovered | Died |
|---|---|---|
| Cases Operated Upon | 53 | 26 |
| Cases Not Operated Upon | 13 | 5 |
| | 66 | 31 |

Elapsed Time

| | Recovered | Died |
|---|---|---|
| 4 or More Days | 14 | 15 |
| 3 Days | 2 | 2 |
| 2 Days | 4 | 8 |
| 1 Day or Less | 46 | 6 |
| Shortest Time | 1 Hour | 4 Hours |
| Longest Time | 11 Days | 8 Days |
| Average Time | 42.6 Hours | 63.4 Hours |

Clinical Classification (Wangensteen)

| Type | Recoveries | Deaths |
|---|---|---|
| Mechanical—6 | 4 | 2 |
| Vascular—39 | 31 | 8 |
| Strangulated Hernia (34) | (30) | (4) |
| Volvulus (2) | | (2) |
| Intussusception (2) | (1) | (1) |
| Mes-Thrombosis (1) | | (1) |
| Adhesive—45 | 28 | 17 |
| Post-Operative (23) | (16) | (7) |
| Inflammatory (20) | (10) | (20) |
| Terminal Ileitis (1) | (1) | |
| Tuberculous Peritonitis (1) | (1) | |
| Paralytic Ileus—4 | 3 | 1 |
| Undetermined—3 | 0 | 3 |
| Totals—97 | 66 | 31 |

Two Years 148 Cases—Mortality Rate 35.4%

Chart 4 shows the results in 97 cases during the year 1935 with a mortality rate of 31.9 per cent.

clinical problem there were varying degrees of enthusiasm and surgical acumen exhibited. We believe, however, that these statistics show fairly accurately the result of the application of these principles in the hands of the average surgeon.

Private Series
Acute Intestinal Obstruction
March 1934—March 1936
Chart 5

Number of Cases

| | |
|---|---|
| Recovered | 26 |
| Deaths | 1 |
| Total | 27 |
| Mortality Rate | 3.7% |

| | Recovered | Deaths |
|---|---|---|
| Cases Operated Upon | 16 | 1 |
| Cases Not Operated Upon | 10 | 0 |
| Totals | 26 | 1 |

Elapsed Time

| | Recovered | Deaths |
|---|---|---|
| 4 or More Days | 0 | 1 |
| 3 Days | 3 | 0 |
| 2 Days | 4 | 0 |
| 1 Day or Less | 19 | 0 |
| Shortest Time | 1 Hour | |
| Longest Time | 72 Hours | 7 Days |
| Average Time | 24 Hours | 7 Days |

Clinical Classification

| Type | No. | Recoveries | Deaths |
|---|---|---|---|
| Mechanical | 0 | 0 | 0 |
| Vascular | 3 | 3 | 0 |
| Ileus | 10 | 10 | 0 |
| Adhesive | 14 | 13 | 1 |
| Undetermined | 0 | 0 | 0 |
| Total | 27 | 26 | 1 |

Chart 5 shows a small series of 27 private cases during the years 1934 and 1935 with a mortality rate of 3.7 per cent.

This low mortality rate is the result of several factors, namely, a more intelligent clientele seeking relief earlier—hence an earlier diagnosis; secondly, the prompt application of a therapy in harmony with present day knowledge of the disturbed physiology by a small group willing to apply with meticulous care the principles outlined in this paper.

### SUMMARY

This paper consists of a consideration of the problem of acute intestinal obstruction from the standpoint of its early diagnosis, a more simplified classification and its altered physiology. In accordance with these concepts, an outline of the treatment of the condition is presented which has been followed by the author and his associates at the Memphis General Hospital and by the author in his private practice since 1934. Statistics are presented of 581 cases at the Memphis General Hospital from the years 1923 to 1933 inclusive and compared with statistics of 148 cases at the same institution and 27 cases in private practice, during the years 1934 and 1935. The mortality rates of the latter two groups were 35.4 per cent and 3.7 per cent respectively, which two figures are encouraging and appear to be due to the institution of a therapy more in keeping with the pathology

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### DISCUSSION

Dr. C. P. Gray, Sr. (Monroe): It is to such men as Dr. McGehee that men like myself are indebted. Not having a service at a large hospital, it goes without saying that my remarks will have to be limited to observation and study in private cases, from study of the surgical literature and by following such a series of cases as has been reported here by Dr. McGehee. However there are several points I would like to call attention to and to lay stress upon some of these.

First, I would like to call your attention to the time and study being given intestinal obstruction by the many workers, as is so clearly demonstrated by a hurried survey of the surgical literature of today. Almost monthly one can find new articles in the outstanding surgical journals on intestinal obstruction. This evidence of renewed interest and study, especially since the chemical derangement of the blood in these conditions is being understood, clearly demonstrates that there is yet much to learn about this condition.

Second, one of the first and most important considerations to give to any case of intestinal obstruction is the duration of the symptoms; next, whether the obstruction is high or low in the intestinal canal. The success of whatever plan of treatment is decided upon, will depend to a great extent upon these factors, especially is this true in the high obstruction, where the loss of essential secretions is rapid and prolonged.

In addition to the factors just mentioned, plus the loss of chlorides, there are other factors to be considered as Dr. McGehee has so well brought out. For instance the changes in the intestinal wall itself and the disturbed circulation in the intestine as a result of overdistention. I was much impressed by the remarks of Dr. McGehee along these lines.

We all recognize the importance of replacement therapy in intestinal obstruction, as so clearly put before us, and what it has done to reduce the mortality in this condition. However it seems that since the chemical derangement which takes place in intestinal obstruction is fairly well understood, and is largely corrected by the replacement therapy with chlorides, that the mortality should be reduced still more. When we consider this we are forced to the conclusion that there are other lethal factors to contend with, for instance the toxine or toxemia mentioned by Dr. McGehee. When all of these lethal factors are determined the mortality in this condition will be reduced still more.

There can be no doubt but that the deferred operation with the continued emptying of the intestine by suction and the replacement therapy, has saved hundreds of lives. Many of these patients, in the absence of a complete obstruction or strangulation, will recover from this plan alone. In others, they can with safety be brought to within a period of safe operability.

Dr. James T. Nix (New Orleans): First, I want to express my appreciation for the deep gratitude I feel in discussing the paper of one of the foremost leaders of the United States and the South, and in collaborating with a man who is one of nature's noblemen and Louisiana's sons. I am deeply grateful for this opportunity.

There is nothing I could say in discussion of this paper that will do more than lengthen the subject. However, I would like to present a few slides which, in my opinion, will be a practical illustration of the points the doctor has brought out, cases that I have had in my own personal experience during the past year at the private hospital in which my work is done, Hotel Dieu, New Orleans.

(Slide) The doctor described mechanical obstruction. The patient came in with acute mechanical obstruction and classical symptoms. She was sent to the roentgen ray department and the picture shows stasis with marked distention and small bowel obstruction. The Wangansteen decompression was instituted at once and operative interference prevented. At the end of a year, just a few weeks ago, she came back to the hospital with recurrence of the same symptoms. She again was given the same treatment with equally successful results.

(Slide) This represents the treatment we carry out. This is just a one-gallon bottle reversed, with a two-way stopper. One tube is attached to a nasal catheter that goes into the duodenum, and the other tube comes down to an empty bottle. The gallon jar is filled with water, and the flow is determined by the pet cock. You can get it to run at the rate of thirty or forty drops a minutes, or whatever is desired. It may take three or four hours to empty the bottle. The Vacoliter Bottle prepared by the Baxter Company is a great addition to intravenous therapy. We have used it 1,500 to 2,000 times, I am sure, without reaction, which is very unusual and which I believe is because the solutions are exceptionally well prepared. In most of our cases we use glucose solution in saline, depending on the chemistry of the patient.

(Slide) I think you can see very well in this case the distended loops of small bowel, the herring bone effect with striations, and the stepladder appearance of the small bowel. The patient was too ill to have vertical pictures, showing the various fluid levels, (slide) but she was placed on her side and a lateral picture was taken. You can see the fluid levels. The patient was given the same treatment. This was a case of intestinal obstruction following a simple laparotomy. On re-opening the abdomen there were found intestinal adhesions and a large quantity of serosanguineous exudate, not purulent. Enterostomy was done, including Wangansteen suction and intravenous replacement therapy. The patient made a nice recovery. (Slide) This shows the one-gallon bottle in use. The stopper is held with adhesive. This is a photograph of the patient just described.

(Slide) This patient was very obese. This is a lateral view of the patient. A. P. picture was very poor because of the large amount of abdominal fat. You can see loops of greatly distended small bowel. The symptoms were those of classical obstruction. The patient was operated and was found to have mesenteric thrombosis with eight inches of gangrenous bowel. The patient was in extremely poor condition. The bowel was laid on the abdomen, the healthy loops approximated and were later brought together. The patient made a very nice recovery.

(Slide) This is another case of intestinal obstruction where most of the pathology was on the right side. You can see it in the roentgen ray. You easily recognize loops of distended bowel and multiple fluid levels. The picture is a flat plate, A. P. view. (Slide) This is a picture of the same patient in the vertical position, showing three definite fluid levels. This patient had a large ovarian chocolate cyst about eight by six which had ruptured into the abdominal cavity with resultant intestinal obstruction. The ovary was removed, standard treatment instituted and a smooth recovery followed.

(Slide) This is a most unusual case. I did not think this old lady had much of a chance. She was 65 years of age and had had arterial hypertension over a good many years. The gallbladder became gangrenous and sloughed off, bile pouring out into the abdominal cavity. She was operated on. We could not do anything to the gallbladder except to drain the gallbladder area. The pelvis was full of bile. She was put in a sitting position and the pelvis drained. Enterostomy was done and treatment instituted as previously recommended. She made an uneventful recovery: (Slide) showing the fluid levels, and the herring bone or stepladder effect as brought out by the roentgen ray pictures.

(Slide) Picture of the patient taken a few days ago. She is still in the hospital.

When a case of acute intestinal obstruction enters the hospital in the middle of the night, it is just as much an emergency for the roentgen ray man as for anybody else and pictures should be taken at once.

Dr. J. L. McGehee (Memphis, Tenn.): I wish to thank Dr. Gray and Dr. Nix for their very kind discussion.

I really believe we are on the right track in our efforts to improve the mortality rate in acute intestinal obstruction. In large general hospitals, such as Charity Hospital in New Orleans, the Memphis General Hospital, and the general hospitals of other large cities, there will always be a certain percentage of patients admitted who are moribund, but I really believe in the care of private patients of the better social strata who seek relief early and diagnosis can be made early, the mortality rate of acute intestinal obstruction can certainly be reduced to the place Dr. Deever said many years ago it should be, to less than 10 per cent.

I felt a little presumptuous in putting my private series of only 27 cases on the screen, but I did it to emphasize the idea that the different types of patients will give a different percentage in the mortality rate. Notwithstanding this new idea of continuous suction siphonage and replacement therapy, which prevent chemical derangement, which we now think is the cause of death, the time element must not be lost sight of. Early diagnosis is still the key to an improved mortality rate.

Again, I wish to express my thanks and appreciation for the courtesies that have been extended me, and to say to you that I have enjoyed myself throughout the entire meeting and hope that I can come back again some time.

# THE USE OF EPIDURAL ANESTHESIA IN GENERAL SURGERY*

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New Orleans

Since the discovery of the anesthetic properties of ether by Crawford W. Long, 1842, there has been a constant search for the ideal anesthetic, and the ideal means of administering it. I do not believe we have as yet attained this goal, but we have gone quite a distance in that direction. At present it is well recognized that in choosing the anesthetic for any operative procedure the individual case must be considered. There are at present dangers in any known type of anesthesia, and the doctor's problem is to determine which is least hazardous for his patient. A secondary point which must also be considered is which anesthetic will be best from the surgeon's point of view, that is in regard to muscular relaxation and ease of administration.

A type of anesthesia which most closely combines these important factors has been used a great deal in Europe and South America for the past four years with excellent results. It is known as epidural anesthesia, deriving its name from the space into which the anesthetic solution is injected. With epidural it is possible through a single puncture to produce an analgesia sufficient to carry out any type of operation below the chin without entering the subarachnoid space. During the past seven months I have used this type of anesthesia in over two hundred and fifty cases, embracing a wide variety of operative procedures, with very gratifying results. My observations in the first one hundred cases I reported this past November, and since broadening my experience I am more enthusiastic than ever about the method.

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The idea of injecting anesthetic solution into the epidural space was first conceived by Corning in 1885 but he abandoned work along these lines to devote his time to the study and perfection of subarachnoid or spinal anesthesia. Then in 1901 Cathelin blocked the last sacral and coccygeal nerves by injecting anesthetic solution into the sacral canal through the sacral hiatus. This was a type of epidural anesthesia, and was perfected by Lawen in 1910 for use in gynecology and obstetrics. However, its usefulness is more or less limited to the perineum. Since 1910 numerous men including Schlimpert, Krönig, Kehrer, Hamecourt and Schneider have tried to obtain abdominal anesthesia by injecting large quantities of anesthetic solution through the sacral hiatus with the patient in Trendenlenburg position. In general the results have not been satisfactory for two outstanding reasons, first because of anatomical defects in the sacral canal and second in some individuals, particularly the obese, it is extremely hard to tell when one is in the sacral canal.

It was not until November 1920, when a young Spanish surgeon, Fidel Pagés, conceived the idea of puncturing the epidural space in the lumbar region that epidural anesthesia became useful in abdominal and thoracic surgery. Unfortunately the career of this enterprising young man was cut short by an untimely death from pneumonia. For ten years there was no mention in the literature of this type of anesthesia. Then in 1931 Dogliotti reported before the Italian Surgical Congress in Turin the discovery of a new type of anesthesia for which he claimed authorship. Upon comparing the reports of Pagés and Dogliotti one is struck by their marked similiarity. However Dogliotti does not mention Pagés and I am sure he did not know of his work. The following year Dogliotti came to this country and reported his results before the American Congress of Anesthetists. The method did not gain favor in this country and it is my opinion that at least one of the reasons was that the method described by Dogliotti of localizing the epidural space was blind and considered by many to be dangerous. This method I shall describe later to contrast it with the method we now use.

In 1927, five years before Dogliotti reported his work, Heldt and Maloney of Henry Ford Hospital in experiments attempting to show the cause of postlumbar puncture headaches, discovered that a negative pressure existed in the epidural space. This discovery, although it may be the cause, has proved of little value in the prevention of headaches following lumbar puncture. However, the fact that a negative pressure does exist in this space has proved of value in epidural anesthesia.

The first man to recognize the usefulness of this negative pressure was Alberto Gutierrez of Buenos Aires. He devised a spinal needle with a concave top so that when the stylet was removed the top would hold a drop of water. He engaged the spinal needle in the interspinous ligament and then removed the stylet and filled the top with water. He noticed that if the needle was slowly introduced through the interspinous ligament that the moment the tip emerged into the epidural space the water was sucked into the needle. This he called "the sign of the drop", and is conclusive evidence that the needle is in the epidural space.

This past summer I visited Buenos Aires and while there I met Dr. Gutierrez. On his service at the Spanish Hospital I saw this type of anesthesia used for the first time. Upon my return to this country I reviewed the available literature on the subject and after convincing myself of its safety began using it. I have this month received a communication from Dr. Gutierrez and he is more enthusiastic then ever about the method. He has used epidural in over 3000 cases and prefers it to any other method of anesthesia. In my work I have followed essentially the method of Gutierrez. I have reviewed the anatomy in a previous article[14] and have listed materials necessary.

### ANESTHETIC

In my first series of cases I used a 2 per cent solution of novocaine to which 1 c.c. of adrenalin was added to prolong the anesthesia. I saw several cases with minor reactions, such as pallor of the face and complaints of dizziness, which I think were due to the adrenalin. Following the discontinuance of this drug these reactions ceased. In operations which are not to last more than one hour it is possible to use a 2 per cent solution of novocaine without adrenalin. In these cases we used the following amounts: 35 c.c. for inguinal herniaplasties, appendectomines, and lower limb operations; 45 c.c. for gynecological surgery; 50 c.c. for upper abdominal procedures such as cholecystectomy, and gastric surgery.

If there is a possibility that the operative procedure may last more than an hour I have found it advisable to combine pontocaine solution with the novocaine solution. This combination has proved extremely satisfactory and will give an anesthesia lasting from one and a half to two hours. As far as we know this is the first time a combination of this sort has been used in this type of anesthesia. In 50 c.c. of normal saline 500 mg. of novocaine crystals and 100 mg. of pontocaine crystals are dissolved. The resulting 50 c.c. solution has a concentration of 1 per cent novocaine and 0.2 per cent pontocaine. This combination has been used in over 100 cases and not a single patient showed evidence of a reaction of any sort. All solutions used at the present time are made up in the operating room, just before injecting, by dissolving sterile crystals in normal saline solution. This insures a fresh solution of exact concentration. Adrenalin is no longer used.

The objection has been raised that one gram of novocaine, which is the amount in 50 c.c. of 2 per cent solution, is a very large dose of this drug. H. Braun, who is responsible for the standardization of practically all methods used in local anesthesia, gives two grams of novocaine as the dosage which should not be exceeded. If this is true certainly half that amount is within safe bounds. I have seen a much larger quantity of novocaine used in local infiltration and splanchnic block with no ill effects. Dogliotti and Caporale report using a 2.5 per cent solution of this drug in a long series of cases with excellent results. Peham and Americh use 1.2 grams to 1.5 grams of novocaine in their high sacral anesthesia and report no evidence of over dosage.

### TECHNIC

With the solution prepared and the sterile equipment on hand the patient is placed on one side. This side on which the incision is to be made is always placed down to take advantage of the gravitation of more of the anesthetic solution to that side. The body is brought to the edge of the operating table with the back bowed out, the knees and thighs are flexed, and the head is brought downward. The arching of the back and consequent stretching of the spinal canal causes an increase in the negative pressure of the epidural space. The shoulders and hips should be in a vertical line for tilting of either results in the "corkscrew spine" and makes puncture difficult. If the operator is accustomed to the patient sitting up the puncture may be carried out just as well in that position. The lower back is then cleansed with ether and tincture of merthiolate. The second lumbar interspace is located by palpation and marked with the thumbnail. At this site, using the 2 c.c. hypodermic syringe, an intracutaneous injection of a small quantity of novocaine solution is performed. Through this wheal the 20 gauge spinal needle is then introduced until its tip is well engaged in the interspinous ligament. The stylet is then withdrawn and the small glass indicator filled with solution is connected to the spinal needle. This glass indicator is made from the glass adapters commonly used to connect rubber tubing to infusion needles. It was first used to facilitate the localization of the epidural space by the negative pressure method. It is just as accurate and far less cumbersome than the use of the U manometer which is advised by some European surgeons.

With the glass indicator in place the spinal needle is slowly pushed through the interspinous ligament. At the point where the needle punctures the yellow ligament a snap is felt and the point of the needle enters the epidural space, at this same instant the fluid in the indicator will be sucked into the needle due to the negative pressure in the epidural space. This is conclusive evidence that the tip of the needle is in the epidural space and the anesthetic solution can be injected with ease and safety.

At this point I think it is well to outline Dogliotti's method of "lack of resistance" to contrast it to the negative pressure method of localizing the epidural space. As soon as the spinal needle is engaged in the interspinous ligament the stylet is removed and the 20 c.c. syringe filled with anesthetic solution is attached to the needle. As one hand slowly moves the needle inward through the interspinous ligament the other hand holds the syringe with the thumb on the piston exerting constant pressure. While the needle tip is in the ligament it is impossible to inject the smallest quantity of solution because of the compactness of this structure. The moment the needle punctures the epidural space the resistance is released and the plunger moves downward with ease. The danger here is that the needle may have punctured the dura and there is the possibility of the fluid being injected into the subarachnoid space.

As I have stated we use the negative pressure method of localizing the space and consider it safer. With the spinal needle definitely in the epidural space the 20 c.c. syringe is connected to the needle and 10 c.c. of the anesthetic solution is slowly injected. The fluid flows in freely with as little resistance as in intravenous injections. A period of five minutes is then allowed to elapse. This precaution is carried out to obviate completely the possibility of an accident from subdural injection of the solution. If, after this time has elapsed, there is no numbness of the lower extremities and the patient can move them one can be sure the needle is not in the subarachnoid space and can proceed to inject the remainder of the solution. If the 10 c.c. of solution has been accidently given into the subarachnoid space an ordinary spinal anesthesia will result. We have found that the injection of the solution in stages of 15 to 20 c.c., allowing a short time between each stage for the diffusion of the solution, is most satisfactory.

Following the injection of the solution the patient lies flat upon the table. If the operation to be performed is in the pelvis or lower extremities the patient is placed in Fowler's position to facilitate the gravitation of the solution downward and blockage of the sacrococcygeal nerves; a slight degree of Fowler's position is also indicated in inguinal hernias and appendectomies to prevent the upward diffusion of the anesthetic. On the other hand a slight Trendelenberg position should be used where anesthesia of the upper abdomen and chest is desired. In kidney operations the patient should lie with the side on which the operation is to be performed down for fifteen minutes to get the greater amount of solution to gravitate to that side. Gutierrez in his last communication states that he "no longer considers the Trendelenberg position necessary to obtain upper abdominal anesthesia."

Some men, including Pagés and Dogliotti, attempt to obtain a segmental anesthesia by injecting the solution into the epidural space in the region of the nerves supplying the segment of the body in which the operation is to be performed. This is technically more difficult and one is more likely to get incomplete anesthesia. The second lumbar interspace is the most desirable site for puncture for reasons which I have already outlined[14] and where I have also indicated the correct management of the patient.

The operations included a wide variety of procedures. It is possible to carry out almost any operative procedure below the chin with this type of anesthesia. Many of these cases were emergencies, and a number of the patients were extremely poor risks. In my first series the percentage of incomplete anesthesias was 9 percent. This has been reduced in the last hundred and fifty cases to 6 percent. Gutierrez states that at present his failures are less than 1 per cent. He is thoroughly convinced that all failures of this type of anesthesia are due to faulty technic.

I had only one case in the series which reacted poorly to the anesthetic: that of a negro male 53 years of age who had a ruptured appendix with abscess formation in the right lower quadrant. He was very emaciated and had been vomiting for a week. Seven minutes after injecting the anesthetic the patient went into shock. He was given adrenalin and artificial respiration and after fifteen minutes began to show signs of recovery. In thirty minutes he had completely recovered and appeared to be in as good condition as upon his admission to the operating room. However, because he had reacted to the anesthetic so poorly it was decided best not to operate upon him. He was returned to the ward and treated conservatively, using Ochsner's technic. He completely recovered and in two weeks was discharged from the hospital. As to the cause of this accident I feel that I gave at least part of the 50 c.c. of 2 per cent novocaine intradurally. It was my tenth case and up to that time I had not taken that precaution of waiting five minutes after the injection of the first 10 c.c. of the solution. The only other explanation I can offer is that it is possible this patient was hypersensitive to novocaine or adrenalin. Gutierrez, in his series of 3000 cases, reports two fatalities; both were in people over sixty years of age. One case had a mitral stenosis and the other a marked cardiac arrhythmia. In either case it is possible that the anesthetic was not at fault.

### BLOOD PRESSURE CHANGES

The blood pressure changes are relatively slight in this type of anesthesia and one of its advantages. In those cases where the extent of the anesthesia is limited to the abdomen there is little or no fall in the blood pressure. Where the anesthesia extended up onto the chest and neck the fall in pressure was gradual and at the end of twenty minutes, when anesthesia was complete, varied from 20 to 30 mm. systolic and 10 to 20 mm. diastolic. In none of the cases in the series, except the accident described above, was the fall in pressure to such an extent as to cause the patient discomfort or worry about his well being. The pulse remained regular and full and there usually was a slight increase in rate when the peritoneum was opened. Occasionally the respiration was deeper and slower than normal.

During the operation the patients as a rule are comfortable. Only seven cases complained of nausea and four of these vomited a small amount. In six cases the patients were highly excitable and apprehensive and complained of a sensation of pulling when the viscera were handled. In all six cases there was complete relaxation of the abdominal wall and a first degree gas anesthesia was sufficient to carry out the operative procedure. All the patients in this series retained the ability to some extent to move their legs in spite of sensory anesthesia. The motor nerves seemed to be affected only slightly if at all. This we have been unable to explain on an anatomical basis and is probably due to a selective action of the novocaine on the sensory nerve roots. This fact explains why the phrenic and intercostal nerves are not affected in those cases in which the Trendelenburg position is used and the anesthesia spreads up to the chin. Several patients in this series exhibited anesthesia to this height and were not in the least uncomfortable, nor was their respiration in any way impaired.

Postoperatively these patients were far more comfortable than in any other type of anesthesia. There was no nausea or vomiting. Headache and neck pains which one encounters so often in spinal anesthesia do not occur. One of the outstanding things noted postoperatively was the ability of the patients to void voluntarily. Few cases in the series required catheterization.

### ADVANTAGES AND DISADVANTAGES OF EPIDURAL ANESTHESIA

From observations in this series I feel that epidural anesthesia is definitely the anesthesia of choice in a number of conditions. Outstanding in this group are those cases which are already severely shocked and therefore should be spared as much additional shock from the anesthetic as possible. Under this heading I would include cases of ruptured ectopic pregnancies, ruptured peptic ulcers, placenta previa where cesarean is indicated, and gunshot wounds of the abdomen where the patient is not intoxicated. Another group in which I think epidural is indicated are those cases having such pulmonary complications as tuberculosis and bronchitis, and those cases having such cardiac complications as extreme arteriosclerosis and myocardial degeneration.

A group in which epidural anesthesia is definitely contraindicated are neurotic, highly excitable individuals. Patients desirous of being asleep during the operation should be given a general anesthetic unless there is some definite contraindication. Epidural should not be used in intoxicated patients as it has been shown these cases do not tolerate novocaine very well.

When epidural anesthesia is compared to other types of anesthesia its advantages are readily seen. It has all the advantages of spinal anesthesia without many of its undesirable features. There is no danger of injuring the cord for the dura is not punctured, bulbar accidents cannot occur because the anesthetic solution cannot reach the medulla, spinal anesthesia affects the central nervous system while epidural blocks only the nerve roots; since the dura is not pierced there is no danger of a meninigitis or encephalitis; blood pressure changes are less marked than in spinal; a longer anesthesia can be obtained with epidural than with spinal; patients are more comfortable and vomit less often than in spinal, and post-operatively the patients do not have post lumbar puncture headaches and in general are far more comfortable.

When compared to general anesthesia it is less toxic and the patients are more comfortable post-operatively. A well trained, skilled anesthetist is necessary to give a good general anesthetic, while epidural can be given by the surgeon. In many cases where pulomnary and cardiac conditions exist general anesthesia is definitely contraindicated and these patients can take epidural with safety.

## CONCLUSIONS

1. Epidural anesthesia should be part of the armamentarium of every general surgeon.

2. Although there are dangers in its administration, using correct technic it is the safest method of anesthesia now in use.

3. Post-operatively these patients are more comfortable than after any other anesthetic.

4. A combination of novocaine and pontocaine solution is well tolerated in this type of anesthesia and will give an analgesia of one and a half to two hours' duration.

5. The negative pressure method is the safest and most accurate means of localizing the epidural space.

6. There is a definite selectivity of the sensory nerves over the motor nerves in this type of anesthesia.

7. Epidural anesthesia has not been given the attention in this country that it deserves.

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## DISCUSSION

Dr. A. S. Hamilton (New Orleans): Dr. Odom's excellent paper should stimulate anew our interest in epidural anesthesia. He has presented the salient facts so well that I can only emphasize a few of them, particularly as applied to the treatment of fractures.

First, the importance of adequate pre-anesthetic medication cannot be emphasized too strongly. Aside from the absolute failure of the anesthetic, our worst complications have resulted from apprehension on the part of the patient. Only those who were not adequately prepared have manifested such reactions as laryngeal spasm, trismus, generalized muscular rigidity and hyperpnea. We do not feel that these symptoms result from the novocain injected, but are part of a psychic disturbance.

Second, it has been my experience that it is not advisable to decrease the amount of solution injected. It is possible to obtain excellent anesthesia in the lower extremities with as little as 400 milligrams of novocain, but the volume of the solution should be 30 c.c. or more. Using from 15 to 25 c. c. of solution, my failures were nearly fifty per cent.

Third, in order to take full advantage of the drug injected, I have found it advisable to keep the patient lying on the affected side for the full twenty or twenty-five minute period before the full effect of the anesthetic is noted. In this way one frequently observes an excellent analgesia of one leg while the other retains its full sensibility.

Fourth, Cannon's work offers a possible explanation for the course of the blood pressure reading during this type of analgesia. He has shown that sympathetic section results in a slight temporary fall, followed by a return to normal. Dr. Odom's injections with lipiodol show that the solution injected epidurally invades the nerve sheaths sufficiently to bathe the sympathetic rami in the anesthetic solution. Therefore, we might expect to see a temporary fall in the blood pressure, followed by a return to normal, which is exactly our clinical observation. While I have used epidural anesthesia only on colored patients, other members of the Charity Hospital staff have noted the close resemblance of the skin of white patients anesthetized in this manner to those who have had sympathetic block or section.

Dr. T. B. Sellers (New Orleans): Inasmuch as I have never used epidural anesthesia, my remarks necessarily will deal with generalities and with an explanation of why I have not employed it.

For many years I have used professional anesthetists not only in giving inhalation anesthesia, but also in administering spinal and regional block. One who is doing this work daily is more dextrous, therefore the anesthetic is safer and more effective. If any complication should arise, the surgeon is relieved of all responsibility concerning the anesthetic and can give his entire attention to completing the operative procedure. Not infrequently, in all types of regional block, including epidural, the anesthesia is either inadequate or the operation is longer than was originally anticipated; in such cases the trained anesthetist can supplement regional with inhalation anesthesia.

Dr. Odom is to be congratulated on bringing to our attention another type of anesthesia, first used about half a century ago, but like many other valuable procedures more or less dormant through the years. It was used again about thirty-five years later and has gradually gained popularity up to the present time, due probably to the manufacture of less toxic drugs in recent years and to the development of a more accurate technic in administration of epidural, thus making the procedure safer and more effective.

It is doubtful that epidural will replace other accepted methods of local and general anesthesia, but it will probably prove of inestimable value in making surgery possible in a certain group of cases in which it has been hazardous. In future years, Dr. Odom will be known as the first man in the South to use epidural anesthesia, and his original work and technic will redound to his honor.

To determine the relative safety of epidural would necessitate a large series of cases, as statistics show that with ether the mortality is only one in ten thousand cases in expert hands. Also, in stating that a procedure is safe and simple, we must remember that the originator of any procedure usually develops refinements of technic which are seldom duplicated by the profession at large. Safety and simplicity are therefore relative matters, being dependent upon the dexterity of the operator.

At a meeting of the New Orleans Gynecological and Obstetrical Society, Dr. Graffagnino reported a case of a near fatality with epidural anesthesia which demonstrates even in the hands of an expert the possible danger of this method of anesthesia. Those of us who wish to try epidural should remember that in inexperienced hands this danger is multiplied many times. Even if epidural should prove to be a safer procedure than inhalation anesthesia, the time element would still be a factor. Dr. Philip Carter stated that it takes about forty-five minutes from the time the anesthetic is started before operation can be undertaken.

Dr. James E. Walsworth (Monroe): This is one of the most important subjects that has been presented before this Society at this meeting. I am reminded of an efficiency expert who was discussing the work of the surgeons, and he said that of all the arts practiced by men, the average surgeon was the poorest equipped mechanically to carry out his service, and yet it is the life saving art of all. In discussing the anesthetic proposition, you know Doctor Koster of Brooklyn uses spinal anesthesia for everything at times, from the sole of the foot to the top of the head. He has several thousand cases of spinal anesthesia, and using the Labat method he teaches that it is eminently safe. Other men are not capable of following the refined technic as taught by Dr. Labat, and they get in trouble.

In the Royal Infirmary in Edinburgh, I had the pleasure of being associated with Dr. White who, in 1930, presented a paper on a neurologic subject at the Philadelphia meeting of the American College of Surgeons. He was bemoaning the fact that chloroform anesthesia was now a lost art, and he was using chloroform anesthesia in the Royal Infirmary in Edinburgh at that time, going back to the old regime, claiming it was, when properly administered, the safest and most pleasant anesthetic drug for the patient.

All of you remember the great popularity that the method of controllable spinal anesthesia had a few years ago, which I believe, at this time, has certainly lost much of its popularity. I wish all of you could get the personal appraisal of this method by the various English surgeons—in that country, as I understand, the Pitkins formula was allegedly originally introduced.

Medical men, surgeons, and the public alike often permit themselves to become a part of programs that vary with their experience in the popularity of the subject matter. However, if the science of medicine and surgery has taught doctors anything, it has taught us the necessity of keeping an open mind, and we should appreciate the presentation of a comparatively new technic by Dr. Odom to the Surgical Section of the Louisiana State Medical Society.

Dr. Peter Graffagnino (New Orleans): I am sorry time will not permit me to discuss this paper at length. However, I want to say I am happy to know I have had a part in the development of this anesthesia in New Orleans. I feel our efforts have been amply repaid in encouraging Dr. Odom in this line of work, and have placed our material at his disposal.

I think this method is one of great importance and that when the technic is developed it will have a definite and fixed place in surgical, gynecological and obstetrical anesthesia. In the near future we will present a series of obstetrical cases wherein we have used this method. I believe the most dramatic effects with this method of anesthesia are obtained in the surgical procedures of obstetrics.

Dr. Roland Young (Covington): In regard to the patient's behavior, some eight years ago the Journal of the American Medical Association in quite a number of its articles, brought out very clearly the necessity of a little help from the neuropsychiatrist, and suggested that just as the urine was examined before an operation perhaps it would be advisable for a neuropsychiatrist to see the patient. The patient may fear going to sleep just as he may fear not going to sleep. I believe if the neuropsychiatrist knows his business, he can give the surgeon a little help and certainly render the patient valuable aid. An understanding of the Freudian concept I believe to be often necessary in doing this type of work.

Often the patient is psychoneurotic and occasionally one is met with who has even a mild psychosis and this is not appreciated or known by the attending surgeon and anesthetist.

Dr. Charles B. Odom (In conclusion): The interest and attention that everyone has shown here today is indeed gratifying and it is certainly appreciated. Those who discussed my paper were more than kind with their remarks.

In weighing the merits of epidural anesthesia, one should remember that there is at present no ideal method of anesthesia and even drip ether which is so widely used has its dangers, for I have recently seen two deaths result from improper administration. It is in the poor operative risk case that epidural anesthesia is especially indicated. We have been able to offer more and more patients in this group safer operative procedures. The results in upper abdominal work have been particularly gratifying.

The final point which I wish to stress is that epidural is relatively easy to administer and in careful hands is probably the safest method of anesthesia now in use.

# THE ROLE OF LACTOBACILLUS ACIDOPHILUS IN THE TREATMENT OF DISORDERS OF THE DIGESTIVE TRACT

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Almost four decades have elapsed since Moro[1] first discovered the Lactobacillus acidophilus, and established the fact of its important role in suppressing proteolytic fermentation in the human digestive tract. From the Biblical Patriarch Moses, who prescribed for the children of Israel in their wandering in the wilderness, "Soured milk of kine and goats milk with fat of lambs and rams of the breed of Bashan, as the food provided by Jehovah," to Metchnikoff who saw in copious consumption of buttermilk the means of prolonging life indefinitely, the therapeutic value of sour milk has intrigued the physician, the pathologist, and bacteriologist alike.

Metchnikoff[2] appears to have been among the first to have publicized through the written word the advantages of a buttermilk diet, which tribes of primitive natives of Africa and those of Asiatic Russia and of Armenia had for untold centuries been practicing. In his writings during the first decade of the present century he pronounced as the summum bonum of human health, a healthy intestinal flora, and attributed the unusual longevity of the inhabitants of the Balkan Peninsula to their general and prodigious consumption of yoghurt* milk.

From this yoghurt milk of the Balkans, Metchnikoff next isolated the predominant species of lactic acid bacteria occurring therein which was found to be Lactobacillus bulgaricus, and from this time to date lactobacillus therapy has been occupying the attention of the physician and medical scientist, with unabated progress.

The attainment of Metchnikoff's summum bonum however, was not so readily achieved by bulgaricus therapy, and though his colleague at the Pasteur Institute in Paris, Cohendy,[3] had obtained clinical data supporting the theory of the benign role of the L. bulgaricus when ingested in milk, and though another of his colleagues, Belonovsky, experimented entensively on mice as experimental animals, their results when subjected to a critical study, show only in rare instances the colonization ability of the organism under consideration.

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*Also spelled yoguet and yohourt.

As unconvincing as were the data obtained by Metchnikoff and his coworkers in support of their theory of the effectiveness of L. bulgaricus ingestion in suppressing putrefaction in the human digestive tract, the work of those who attempted to invalidate his findings were, if anything, less trustworthy. In this category we have the work of Leurssen and Kuhn,[4] of Ohler,[5] Severin,[6] Distaso[7] and Schiller, Kulka,[8] and Herter and Kendall.[9]

It is in the work of the American Rahe[10] in 1915, that we find the first completely adequate appraisal of the L. bulgaricus therapy and the first study in which the experimental procedure was entirely trustworthy. The results of Rahe's studies conclusively proved that L. bulgaricus rarely survives more than a very short period in the digestive tract after the feeding of it to the patient is discontinued. While the extensive investigations of the role of L. bulgaricus, in correction of putrefactive changes in the digestive tract, did not substantiate the earlier claims for it, they did give a great impetus to the study of the underlying causes of these changes, and the conditions predisposing thereto.

It was but a natural sequence therefore that attention was next directed to the influence of carbohydrates in conjunction with milk feeding and its influence upon the intestinal flora of human subjects. Here we have the work of Backman,[11] of Biernacki,[12] Eisenstadt,[13] Kraus[14] and others who claimed that carbohydrates have but little effect on protein decomposition, while Winternitz,[15] Grundzach,[16] Schmitz[17] and Albu,[18] concluded from extensive studies that lactose especially inhibits these putrefactive changes in the digestive tract, which the last named investigator attributed to its stimulation of peristalsis and to certain inherent antiseptic effects.

It is interesting, in this connection, to note the observation of Grundzach, who postulated as an ideal "antiputrefactive" agent, one which would itself be insoluble, yielding soluble products on disintegration which would be harmless and act as strong acids in *statu nascendi.*

It seems a strange paradox that the discovery of Lactobacillus acidophilus actually antedated that of L. bulgaricus, for it was in 1900 that Moro described the latter organism, which had been isolated from the stools of nursing infants. While the term acidophilus, as applied to this particular species of the lactobacilli, is somewhat erroneous, and should be superceded by the more appropriate one of "aciduric" since the organism in question, tolerates rather than loves high acidity in its substrate, still if regarded in the light of the production of acid under the conditions existing in the digestive tract the term might be considered applicable.

Moro's studies were quickly followed by other investigators who were eager to test the function of the new species in actual feeding experiments on human subjects, and hence we find appearing in the literature the works of Cippolina,[19] Weiss[20] that of Rettger and his associates,[21] and especially that of Torrey[22] in 1915. It was this last named investigator who first demonstrated the importance of L. acidophilus in the feces of adult human beings, and demonstrated the transformation of the intestinal flora by means of lactose feeding. The work of Coleman and Torrey[23] indicated the use of L. acidophilus in correcting tympanites and diarrhea of typhoid fever, and Torrey and Kahn[24] demonstrated that in vitro L. acidophilus was able to inhibit the usual proteolytic activities of spore bearing anaerobes, which seemed to have been based upon the acid produced by the former.

The work of Rettger and his associates, particularly with Cheplin, on the therapeutic application of L. acidophilus, stimulated the general investigation of the subject, and we have that of Gompertz and Vorhaus,[25] Norman and Eggston,[26] Bass,[27] Pope,[28] Reddish, Mizzell,[29] Clark and Perry[30] and others. It is of interest here to quote from the work of Gompertz and Vorhaus, summarizing their results on the treatment of 200 patients suffering from autointoxication and chronic constipation.

"Seventy per cent showed complete relief from their symptoms of toxaemia; 15 per cent showed some improvement while the remaining 15 per cent showed none whatever. Since the 15 per cent of failures included many who did not continue the culture for an adequate length of time we feel reasonably sure that if this treatment is continued for five weeks in every case a larger per cent will show an improvement. In contradistinction to the relief of the symptoms, the constipation itself showed complete relief in only 25, improvement in 35, and failure in 40 per cent of the cases. In the second group, the diarrheas, there was complete relief from all symptoms in 70, some relief in 10, and failure in 20 per cent of the cases (100). Although this study has not been carried on long enough to determine the permanence of these figrues, we wish at this time to record the fact that in these cases under observation for a year or more, from 10 to 15 per cent showed a return of the symptoms."

It is to Kopeloff[31] that we are indebted for one of the most complete reviews of the literature on acidophilus therapy as well as to one of the most comprehensive investigations in this field. Pursuing these studies at the Psychiatric Institute at Wards Island, New York, he was in a position to treat a very large number of patients, with adequate facilities for laboratory studies of all phases of the problem. In these extensive studies including the comparative colonization powers of L. acidophilus and bulgaricus, the effect upon constipation relief of administrations of the former organism, of its role in suppressing putrefactive changes in the intestines, and the most efficient methods for its administrations, there is a very clear and adequate appraisal of the status of the problem up to 1926, the date of publication of his classical contribution to this subject.

We can hardly afford not to quote some of the conclusions that he deduced from his extensive investigations, which we give as follows:

1. L. Bulgaricus can rarely if ever be implanted in the human intestine. In only one instance out of twelve were L. bulgaricus organisms recovered in the feces after two weeks of feeding in large quantity.

2. L. acidophilus was recovered from the feces of all of the same patients ingesting this organism in large numbers. In all but one instance, over 67 per cent L. acidophilus was found by plate count during ingestion, 95-100 per cent being found in four instances. Two weeks after treatmet no L. acidophilus could be recovered due to the short duration of feeding.

3. Constipation was markedly alleviated by administration of L. acidophilus milk containing 200,000,000 viable organisms per c.c. In non-constipated cases there was a tendency to increase the number of normal defecations per day. The benefits of L. acidophilus therapy persisted after treatment and in all but one instance in which the condition after treatment was better than that which prevailed before treatment was instituted.

Further conclusions reached by Kopeloff are as follows:

1. Relief from constipation has been secured in a series of 52 cases by the oral (and rectal) administrations of L. acidophilus milk with or without lactose. Of four non-constipated cases fed L. acidophilus milk for two weeks, two of these had an increased number of normal defecations daily.

2. Lactose proved to be valuable in prolonging the beneficial effects of L. acidophilus milk feeding after the administration of viable acidophilus was discontinued.

3. The results obtained by L. acidophilus therapy appears to have a certain degree of permanence even when the ingestion of lactose is stopped. Eighty per cent of the cases under observation after treatment was discontinued had a greater number of normal defecations than before L. acidophilus treatment was begun. One patient under observation for three years after L. acidophilus and lactose treatment was stopped continued to have normal defecations daily. Prior to treatment this patient averaged only one normal defecation per week. Others also showed benefits upwards of a year after treatment was discontinued.

4. Eleven cases of severe diarrhea, and two cases of sporadic diarrhea were successfully

treated by the administration, oral and rectal, of L. acidophilus milk.

With such conclusive data on the value of acidophilus therapy as the above which appeared in Kopeloff's work a decade ago, it seems almost incomprehensible that the administration and distribution of viable cultures of this organism is still so limited, and so vaguely appreciated both on the part of the physician and the general public. Yet I believe I can make the statement, without fear of contradiction, that acidophilus therapy is less popular today and less known, than it was at the time Kopeloff's convincing data was published.

To explain this seeming paradox one must critically analyze and appraise: (1) The characteristics and qualities of the organism itself; (2) the carriers or maestra, that have so far been employed for its distribution, and (3) the facilities for, and the conditions under which it has been until lately administered.

When we inventory or appraise the characteristics of L. acidophilus we find first of all, and to opinions to the contrary notwithstanding, that biologically speaking, this organism is quite frail, delicate and comparatively poorly endowed with those qualities which would enable it to compete with other aciduric organisms for survival. For example it is incomparably inferior to L. bulgaricus in its aciduric properties, and where this competition takes place *in vitro,* the latter invariably suppresses the former. Again L. acidophilus is a slow grower as compared with the others, and more quickly degenerates when left in contact with the products of its own metabolism.

It is only in the environment of the human or animal digestive tract that it established itself in competition with other aciduric organisms, but the difficulty of placing it there in adequate numbers, in the proper condition of viability, and in a condition of comparative freedom from contamination, has been a problem that the bacteriologist has taken long to solve.

By nature, and by composition, milk is the logical carrier of the L. acidophilus, for though it never occurs normally in this substrate it is comparably suited in composition for the organism, and carries with it the very substance upon which the former depends for its development.

It was natural, therefore, that milk should, as at first, have been used exclusively for the therapeutic administration of acidophilus. However, by a strange paradox the seeming adaptedness of this substrate for the organism, constitutes one of the gravest drawbacks to its use for this purpose.

It is true that milk is one of the most ideal substrates for the cultivation of acidophilus, but since it is the natural pabulum for the growth of the most formidable of the bacterial competitors of this organism, its development and dissemination in this medium necessitates the most drastic form of pre-sterilization, and the most rigid pure culture methods. This sterilization, while it can be made effective in the large percentage of cases, is subject to failure from the fact that the organism whose presence in the product is most assiduously to be avoided, are the very ones most likely to survive sterilization temperatures. Again, fresh unheated milk contains oxidases and reductases, which temporarily retard the growth of putrefactive micro-organism, while the lactic acid group are but slightly impeded, if at all. Upon heating, all of these protective properties are lost and unless an absolutely pure culture of acidophilus is used for its inoculation, a dangerous product is very likely to be the result.

These difficulties, however, are not insurmountable, for bacteriologic technic is now adequate for such pure culture operations and large scale operations, but we are confronted in this case, as I shall now point out, with something more difficult to obviate, namely the effect of this procedure on the palatability of the menstrum.

Sterilization of milk at 15 pounds pressure for the considerable period of time necessary to sterilize milk, alters it in appearance and in flavor, and the average consumer, although he may like fresh or even pasteurized milk, abhors as a rule the genuine acidophilus milk prepared by standard methods. The caramel like color of the product, the peculiar acidophilus flavor, render acidophilus milk as foreign to the taste of the average milk consumer as if it were mineral oil or citrate of magnesia.

Furthermore, the rapid growth, comparatively speaking, of acidophilus in milk means the rapid production of products of bacterial metabolism to which the organism itself is quite susceptible, and from the effects of which it rapidly succumbs.

Kopeloff[32] has shown that the death rate of L. acidophilus in milk when stored at ice box temperature at 9°C. (48.2°F) to be as follows·

| Days in Storage | Per Cent Killed |
|---|---|
| 1 | 45.7 |
| 2 | 73.0 |
| 3 | 97.5 |

From these figures it is apparent that acidophilus milk is a very unstable and perishable product, and in order to be effective as a therapeutic agent it must be consumed promptly after manufacture. An additional factor militating against the large scale or industrial production of a reliable acidophilus milk, is the sensitiveness of the organisms to minute traces of practically all metals.

Rettger, Levy, Weinstein and Weiss[33] have shown, for example, that metallic copper or copper sulphate in the proportion of from 0.2 to 0.4 per cent markedly inhibits the growth of the organism and other metallic salts have also been proved to have bactericidal effects. This necessitates, of course, the use of glass containers and glass equipment throughout a plant, which markedly increases the plant costs. All of these factors have operated against the success of attempts to industrialize acidophilus milk production, and today practically every large plant which has distributed the product, has discontinued operations.

It is only in hospitals where bacteriological facilities are available, and where there is a more or less constant number of patients to whom acidophilus therapy is indicated, that acidophilus milk therapy seems destined to survive. It is there that the product can be consumed promptly as prepared, and only there where the patient can be made to consume a product, which he naturally detests, under the watchful eyes of doctor and attending nurse. In his home the patient will rarely consume the product, even though his physician recommends it without reservation or equivocation, which is rarely the case. Too often the physician himself is luke warm on the subject, not because of his unbelief in it, but because of his logical doubts in the merit of the product at his disposal.

The most reliable firms of therapeutic manufacturers have sensed the unreliability of acidophilus milk production, and have endeavored to supply a product of thoroughly reliable and proven viability and stability. However, all of these efforts have been unsatisfactory, and most of the preparations have been withdrawn from the market, as they have been found lacking in efficacy, stability and reliability.

The acidophilus therapy and its possibilities have not escaped the attention also of those parties interested in the lure of the profitable exploitation of this intriguing and already well advertised line of medical practice. So there has arisen at various places and at various intervals, many and diverse acidophilus preparations, such as candies, cultures, yeast mixtures, tablets, and various other combinations which have met with a well earned neglect on the part of the public, as well as a well deserved opposition from the medical fraternity.

For these products we can best quote from Bass,[34] who comments thereupon as follows:

"In the instance of tablets none of these examined was found to contain as many as 1000 viable bacteria of any kind per tablet. If it should be granted that all the viable bacteria present were acidophilus it would take about 1,000,000,000 tables or more than 20 tons to contain as many bacilli as are contained in 1000 c.c. or the usual daily dose of the acidophilus milk, the quantity found by most investigators at least, to be necessary to transform the flora."

As these various attempts are reviewed to obtain a suitable acidophilus carrier, and to produce a stable and reliable product for therapeutic purposes, the following errors may be perceived in the procedure heretofore adopted. These errors of procedure seem to have fallen into two categories, viz.: (1) the use of a substrate like milk, which permits of the attainment of the desired concentration of acidophilus bacteria but is very unstable on standing, and the viability of the organism of very brief duration; (2) the use of substrates like milk whey, in which the concentration of the organism never attains the values desired, and (3) the use of substrates entirely foreign to the nature of the organism, like chocolate or sugar tablets, or mechanical mixtures of the bacteria with compressed yeast.

It can be readily seen that the obtainment of the numbers of viable acidophilus cells in any substrate of a stable form, depends in the ultimate analysis upon some method of artificial concentration, such as centrifugalization or filtration. In either of these procedures we accomplish not only a concentration of the organism, but what is of more value the separation of the cells from the prejudicial environment of the menstrum in which they have been developed, and the elimination of their metabolic products concentrated therein. Both of these desiderata seem to have been accomplished in the new acidophilus product known as lacto yeast, and which has been and is being produced here in Baton Rouge. In the preparation of this product, the development of L. bulgaricus is thwarted at the very outset by the use of a carbohydrate substrate containing maltose rather than dextrose, levulose or sucrose. In this medium the contaminating organism of aciduric tendencies are screened out, the attainment of a pure and concentrated acidophilus culture is effected, and from this point the symbiotic, or mutually beneficial, associative growth of the Lactobacillus acidophilus and yeast is attained. This resulting mass of acidophilus bacteria and yeast is finally filtered off, and a product obtained, containing not only a very high concentration of acidophilus cells, but in a very stable form.

By what is known as "alleocatalysis" the presence of the yeast cells in close proximity to the acidophilus ones, render effective a very much smaller number of the latter when administered in the form of the combined yeast and acidophilus than is possible in any other combination.

By way of illustration we may cite the example of this effect in the following tests; showing the action *in vitro,* of acidophilus and yeast in the form of lacto yeast, and compared with acidophilus alone or acidophilus plus yeast when the two are grown independently. In the first case there is the curdling of previously sterilized milk 12 hours, in the second in 24 hours, and in the third in 18 hours, illustrating precisely the same process that occurs in the human digestive tract.

While the number of viable acidophilus cells in lacto yeast far exceed that required by the American Medical Association in concentrates, it may be assumed from the foregoing that such concentrations are unnecessary, and need not be required.

By the same process of, "alleocatalysis" to which we have above referred as taking place *in vitro,* the proximity of yeast cells to those of acidophilus, of symbiotic development, therewith tend to produce an instantaneous growth of the latter, and the benign effect of acidophilus colonization is promptly reflected in the results of the therapy. Having had occasion for a number of years to administer acidophilus and having been situated in a section where digestive infections were very prevalent and very persistent, we have followed this therapy with more than usual interest.

Our study of lacto yeas tas a therapeutic agent has impressed us with its possibilities, and we have reasons to believe that there are virtues in this symbiotic preparation, which its discoverers have emphasized insufficiently.

Next to be reviewed are the conditions existing in the human digestive tract, and what is required to change its flora from the malign to the benign form.

### THE PROCESS OF DIGESTION IN THE HUMAN ALIMENTARY TRACT

Beginning with the stomach the food which has been ingested and thoroughly mixed with saliva, containing various enzymes, which attack sugars and fats, is brought into contact with a highly acid menstrum in the form of the gastric juice. The composition of this material and its acidity are as follows:

| | |
|---|---|
| Water | 994.40 grams |
| Solids | 5.60 " |
| Organic matter | 3.19 " |
| Sodium chloride | 1.46 " |
| Calcium chloride | 0.06 " |
| Potassium chloride | 0.55 " |
| Hydrochloric acid | 0.20 " |
| Phosphates, of calcium, of magnesium and of iron | 0.12 " |

The acidity of this material, in the normal individual runs around 4 to 6 c.c. of N/10 Na OH per c.c. and the pH around 2 to 3. It will be seen that immediately the food enters the stomach, the organisms contained therein are subjected to the deleterious action of a relatively high concentration of hydrochloric acid, and as a consequence there is, not only no bacterial growth, but on the contrary a material diminution of the viable micro-organisms originally contained in the ingested food. From the time the food leaves the stomach (3 to 6 hours after ingestion) through the pyloric opening into the duodenum and receives the bile and pancreatic juices, the pH increases and the condition for the development of putrefactive bacteria becomes increasingly favorable. When the colon is reached there is a battle ground for all the micro-organisms which have survived the action of the acid in the stomach.

In addition to the acidity of the stomach, there is another condition which tends to direct and control the subsequent phases of the competitive activities of the various groups of mircro-organisms in the human digestive tract, and that is the decreasing supply of available oxygen. To illustrate this, the action upon methylene blue of the contents of the various parts of the digestive tract from the duodenum to the entrance to the colon may be sketched. Beginning in the ileum, the reducing action is sufficient completely to decolorize methylene blue and anaerobic conditions prevail from this point throughout, until the contents of the colon are discharged. From the ileocecal valve opening into the colon, the number of micro-organisms increases tremendously and have the opportunities, for the predominance of any group of micro-organisms in this part of the digestive tract, depends upon the comparative number of viable cells which reach the point and the ability of the organisms to develop under anaerobic conditions. In addition to these there should be included a third factor which we have so far omitted, and that is the decreasing moisture content of the fecal matter from its entrance into the colon until its discharge through the rectum. Lactobacillus acidophilus is exceptionally adapted to survive these conditions and by virture of this capacity it is able to suppress the growth of the malign micro-organisms which would otherwise predominate and generate the toxins from which we all suffer to varying degrees during adolescence, adult life and senescence. In the first place the Lactobacillus acidophilus, while not true to its name in preferring acid substrates, has undoubtedly an adaptitude to such conditions to a greater degree than any of its co-members of this group. It will easily survive exposure to a pH of 3.0 over long periods, and will grow in a substrate containing 1 per cent of acetic acid. While Lactobacillus bulgaricus will produce more lactic acid than the acidophilus the latter will better survive a long exposure to this influence. However, it is our belief, based on a long study of the characteristics of this organism that the property that enables it to survive and to colonize in the human digestive tract is its ability to develop in an atmosphere deficient in free oxygen, that is its facultative anaerobic nature.

Nor do these considerations, above enumerated exhaust the explanations of the adaptitude of the acidophilus organisms to survival in the human digestive tract. It is known, for example, that the stools of infants impregnated with these organisms are comparatively immune to the development of putrefative organisms. Thus, Murath and Moro have found feces of infants not only do not support the growth of anaerobic organism of the putrefactive class but are actually inhibitory of such development even when fresh food materials have been added.

Hence, it is found that Lactobacillus acidophilus is equipped in many ways to survive the competition with malign micro-organisms and thus the value of attempts to implant this organism in the digestive tract is based on the soundest physiologic and bacteriologic principles and the success of such efforts on the part of the individual and the medical fraternity is worth every effort that has or can be made to promote it.

### CONCLUSION

I would say that it seems, in the light of my own and that of my associate's experience, that lacto yeast supplies the qualities so long wished for in acidophilus therapy, and that we are fortunate in having at last a dependable and a durable source of viable acidophilus. We might add that it is doubly fortunate that the product itself has none of the deterring elements of taste and flavor, which has prevented the usage of other acidophilus products by the American people.

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# DIABETIC INFECTIONS AND GANGRENE*

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The frightful mortality which attends the complication of diabetes mellitus by surgical diseases of the extremities, especially of the lower, demands the attention of every individual engaged in the practice of medicine. The extent to which the poor results generally obtained are due to the ignorance of the patient on the one hand, and to the lack of understanding of the problem by the physician on the other, cannot be estimated accurately. Some of the features of diabetic infections not universally appreciated by either the patient or the physician are:

1. The minimal amount of pain and constitutional reaction which often attend infection in the diabetic patient.

2. The rapidity with which infections progress in the diabetic.

3. The rapidity and insidiousness with which diabetic patients develop blood stream infections.

4. The profound effect which infections exert upon the metabolic disturbance.

1. As pointed out by McKittrick,[3] the problem in many respects is quite analogous to that in the treatment of malignant disease. In diabetic, as well as in cancer patients, the relative lack of pain and constitutional reaction often belies the seriousness of the disease process. Diabetic patients frequently have much less pain and fever than normal individuals with the same lesion, so that they fail to seek attention until the disease has progressed past the stage in which proper treatment offers the greatest opportunity for attaining a minimum of morbidity, or even for avoiding mortality. The following cases serve as striking illustrations of this point:

Case 1. A white female, a known diabetic, received a small splinter into the ball of the right foot. The localized infection which soon developed at the site of the wound was not painful and for this reason she attached little significance to it. She completely disregarded the warnings of her physician and laughingly refused to furnish him with a specimen of urine. One week later, she was admitted to the hospital with a massive infection of the entire foot, and died twenty-four hours afterwards in spite of drainage and the administration of huge amounts of insulin.

Case 2. A white female, aged 60 years, known diabetic, developed a "boil" in the interscapular region. This was accompanied by very little pain and by no fever, even after it had progressed so that the "boil" had become a carbuncle about one foot in diameter. Only after the lesion had continued to maintain this size for one week did she become sufficiently alarmed to call upon her physician. A few hours after her admission to the hospital, her temperature rose rapidly to 105°F., where it remained until she died twenty-four hours later, after incision and drainage and administration of large amounts of insulin.

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*Read before the Orleans Parish Medical Society May 25, 1936.

In both these cases the lesions which eventually caused death were considered of minor importance by the patient because of the relative absence of pain and constitutional reaction.

2. The rapidity with which infections progress in the diabetic is at times nothing short of terrifying. The diminished resistance of the tissues to bacterial invasion due to the disturbance in carbohydrate metabolism and to the concomitant vascular disease is familiar to most of us, but actual appreciation of the significance of this phenomenon might be improved by the following case review:

Case 3. A white female, aged 43, was admitted to the hospital because of diabetes mellitus. In addition to diabetes there was a blister on the left heel, which she stated was due to an ill-fitting shoe. This lesion was not considered of great importance. Within twelve hours it had become infected, and the infection had extended into the deep spaces of the leg, and accumulations of frank pus were found in the intermuscular spaces and subcutaneous tissues as high as the knee.

Again, as in Case 1, according to the history, the picture changes within a period of about twelve hours from one of a small infected area in the ball of the foot to one of massive infection of the entire foot including the ankle.

3. The diabetic develops blood stream infections many times more easily than does the non-diabetic patient. There is usually no warning and there is no relation between the time of development of the septicemia and the time the local infection reaches its height. At times the septicemia occurs when the local lesion is quite small; other times it occurs when the local infection is at its height, and quite commonly, it furnishes both internist and surgeon with the almost heart-breaking experience of seeing the patient relapse and die when it appeared that he was rapidly getting well:

Case 4. A white female, 46 years of age, was admitted with diabetes mellitus and a huge carbuncle on the back. Immediate attention to both the diabetes and the carbuncle was obtained. Day after day for a period of two weeks the wound was carefully attended and the diabetes kept rigidly controlled. The temperature began to drop and the wound was healing nicely and no further difficulty was anticipated. However, the patient became suddenly quite ill; the temperature rose steadily and a blood culture showed staphylococcus albus. Within a few days the patient was dead.

The insidious onset of the diabetic infections together with the rapidity with which these infections often spread and the ease with which the blood stream is invaded make it absolutely necessary that we place this group of patients among those others who are desperately in need of immediate attention regardless of the extent of the local lesion. They are emergencies of the highest order. The cost of delay in life and limb is probably many times greater than the same delay in cases of acute appendicitis.

4. The effect of pyogenic infection upon the disturbance of carbohydrate metabolism in diabetes mellitus is not generally appreciated by the physician. It is this circumstance which gives rise to so much misunderstanding between internist and surgeon and which often results in the complete failure to take advantage of the one opportunity which presents itself for but a fleeting moment in many cases, with the result that the patient loses his life. Almost immediately upon the occurrence of infection by a pyogenic organism the diabetes usually becomes more severe, often to a much greater degree than it has been. The output of sugar increases rapidly and occasionally four or five, or many times more as much insulin may be required to control the diabetes than was customary. Often there is marked fluctuation in the diabetic state and adequate control is extremely difficult or impossible. The patient experiences insulin shocks on one day and excretes large amounts of sugar on the next, with the same diet and same insulin dosage. With very severe infections the requirement of insulin rises to almost unbelievable heights and very often the administration of insulin is entirely without effect. Case 1 had an infection of the entire foot; the deep spaces of the foot were all involved. Following refusal of amputation by a surgical consulant who wished to attempt to save the foot, the administration of 750 units of insulin during the next twenty-four hours failed to control completely the ex-

cretion of sugar. Again, in Case 2, the administration of 450 units of insulin in twenty-four hours failed to render the urine entirely sugar-free. Thus, the presence of extensive infection often makes the diabetes impossible of regulation and control and our only hope for preserving the lives of such individuals lies in the immediate removal of these severe infectious processes whenever feasible. The relative ease or difficulty with which the diabetes can be controlled should be considered a most important factor in determining the course to be followed by the surgeon. One has no hesitancy in expressing the belief that the greatest calamity which has ever befallen the diabetic patient has been the popularization of the false idea that surgery should never be attempted on a diabetic until the diabetes is under rigid control. When a diabetic patient develops a pyogenic infection a vicious circle is established; the infection aggravates the diabetes, and with the increasing degree of disturbance of the carbohydrate metabolism the relative virulence of the infection is enhanced. An attempt has been made above to show that the vicious circle cannot always be broken by the internist with his insulin; experience has shown that the delay involved in making the attempt is often fatal and that in many instances the patient's life can be preserved only by immediate removal of the infection, breaking the vicious circle on the other side so that it may become possible to control the diabetes with insulin. Immediate surgical intervention in some of these cases is one of the most urgent emergencies in medicine. Delay to the next routine operating hour, even if only twelve hours distant, may render treatment of any type futile.

Only by close cooperation with the internist can the surgeon hope to obtain fair results in these cases. The treatment of the diabetes by the internist and the infection by the surgeon, as if the two disease processes existed in different individuals and had little influence upon one another, is a vicious practice and is doomed to failure.

In contrast to Case 1, Case 5 is presented.

Case 5. A colored female, first seen when an infection of the left middle and end toes had caused gangrene of the digits and had progressed to the deep spaces of the foot as far as the middle of the metatarsal bones. Crepitation was present throughout the distal one-half of the foot and there was a large draining sinus between the second and third toes; lymphangitis to the knee. The urine was loaded with sugar. The infection was definitely not due to the Clostridium Welchii but immediate amputation was advised because of the unlikelihood of controlling either diabetes or a rapidly advancing infection with extensive lymphangitis when both occurred in the same individual. Amputation was carried out two hours later. The diabetes was controlled within twenty-four hours and the patient discharged two weeks later.

### DIABETIC GANGRENE

The diabetic patient has suffered greatly from the dissemination of the false idea that diabetic gangrene is simply arteriosclerotic gangrene occurring in a diabetic. However true it may be that the same factors are in operation in both, the fact remains that infection plays a major role in diabetic gangrene, and that for the purpose of treatment these cases are best looked upon as a group of infections in extremities with varying degrees of vascular disturbance. A very few among them may exhibit a minimum of infection and present the clinical picture of dry gangrene, and may be so treated, but even in these the physical appearance is deceiving and death may occur from septicemia without visible extension of the local infection. On the other hand, the vascular element may be negligible and the condition purely one of infection. Between these two extremes are arrayed the vast majority of these cases, frank infections in extremities with various degrees of vascular disturbance. In any case, enhanced by the metabolic defect, the progress of the infection is more rapid than in the non-diabetic with a similar vascular disturbance, and it must also be realized that the infection is extraordinarily effective in destroying the blood supply of the tissues in many of these cases, because the blood supply instead of being furnished by several larger vessels is carried by a large number of quite small ones, which are much more easily thrombosed by infection and compressed by inflammatory edema. Thus it is that in many diabetic extremities, even with efficient collateral circulation, the progressing infection is actually the prime factor in depriving the tissues of blood supply. The infection is invited by the metabolic disturbance, progresses rapidly by virtue of the same factor, and gangrene of the area results because of the peculiarity of the blood supply of the tissue. One cannot too strongly emphasize the fact that these cases are cases of infection and should be treated as such by adequate drainage where amputation is not done.

In the management of these cases the vascular supply, the infection, its rate of extension, the metabolic disturbance, and the cardiovascular renal status must each be estimated, the reciprocal effects of these factors upon one another must be evaluated, and finally the summation of all of these effects upon the patient's chances for preservation of life, limb, and economic security must be arrived at. Then, and then only, can the proper treatment be instituted.

The details of the method of study of these cases need not be reviewed here. We are all familiar with the examination of infections of the extremities and the vascular supply. The oscillometers and other instrumental methods, as well as salt and histamine injections have proved of relatively little value in these cases. The methods of physical examination are more dependable and are generally relied upon.

The principles of management used are best reviewed by illustration:

Case 6. A white male, aged 59 years, was admitted with diabetes mellitus with a present history of claudication and a small infection on the inner side of the great toe of the left foot. The diabetes was of moderate severity. The dorsalis pedis and posterior tibial pulsations were not present in either extremity. Both limbs were colder than normal. The infection was small and apparently well localized. It was treated conservatively and after two weeks of control of diabetes, failed to heal. It likewise failed to progress. At this time, the infected area was excised, the incision being made in "healthy" tissue. A few days later the entire foot was discolored, sugar appeared again in the urine, and amputation was done through the leg (below the knee). About one week later, re-amputation was done in the thigh. At the present time the stump is slightly infected.

In this case the surgeon was dealing with a diabetic extremity with marked vascular embarrassment as evidenced by the present history of claudication, the absence of pulsations and by the temperature changes. The infection was evidently a very small one and a very indolent one, not a rapidly progressing cellulitis. It is of extreme importance to note whether the infection is spreading rapidly or is localized. With an infection of small extent which is causing no great aggravation of the metabolic defect, one may temporize. While some prefer to amputate such a poorly vascularized extremity as that described above, others prefer to use conservative measures, hoping that the infection will heal and that with vascular exercises collateral circulation might be developed and the limb preserved. If a conservative policy is adopted in such a case as that described above, the lesion must be treated simply by moist dressings. The tissues in such an extremity tolerate no trauma whatsoever, no matter how slight, and that involved in the excision of the infected area in this case was sufficient to produce involvement of the entire foot, make amputation necessary, even urgent. Amputation of the leg in a diabetic patient with involvement of the entire foot is rarely successful. Amputation in the thigh might just as well be carried out immediately. We have seen in this case that re-amputation became necessary. In two situations amputation in the upper third of the leg may be indicated: (1) When the infection is not progressing rapidly and there is no lymphangitis of the leg, and the ankle is not involved, and when in the same patient the vascular supply is good. In this type of case a circular amputation with primary closure is done. (2) When there is involvement of the whole foot and lymphangitis extending the length of the leg, it is better to do a guillotine in the leg without closure first, and then do an amputation through the thigh later, when the effects of the infection have disappeared.

Case 7. A white female with diabetes, aged 58 years, was admitted to the hospital with an infection on the lateral side of the base of the great toe of the left foot. A black slough covered part of the infected area. At the margin of this slough there was a deep fissure along the wall of which the tendon of the extensor hallucis longus could be easily seen. How deep this infection extended into the web of the foot could not be positively determined. There were no actual signs of involvement of the deep spaces of the foot itself. The pulsations were excellent; the limb was warm and of excellent color and gave a fairly good response to changes in position. Because the history indicated that the infection had not extended during the past week, and because there was no involvement of the bone (roentgen ray), it was deemed advisable to attempt to save the toe. The efficiency of the vascular supply seemed also to justify this decision. The diabetes was easily kept controlled with 75-90 units of insulin a day. Warm compresses were applied continuously. After four weeks, the wound was cleaner (the slough had been easily and gently removed), and granulating slowly, but was far from healed. Because of economic considerations it seemed that the patient would have been much better off without the toe. However, it must be remembered that the infection was at the base of the toe and there could be no question but that amputation of the toe alone could not be done without danger because the incision would necessarily be carried either through or very close to the infected area. The great possibility of precipitating involvement of the deep spaces of the foot by thus opening avenues of infection and thereby necessitating amputation through the thigh or upper third of leg dispelled toe amputation from our minds. Primary amputation of the foot in order to save a month or two of confinement seemed unjustified in the face of high vascular efficiency. Conservative treatment was continued and the wound was completely healed in another six weeks. The patient's toe is in excellent condition at the present time. Had the infection been the tip of the toe, amputation of the toe might have been justified by economic factors. Had the bone been involved, amputation of the toe would have been absolutely necessary. Osteomyelitis in a diabetic patient demands amputation; in the toe it is desirable that amputation be delayed until the infection is well localized, when it can be done without danger to the foot.

I have here reviewed Case 5; amputation through the leg was done because there was rapidly extending infection involving the deep spaces of the foot to the middle of the metatarsal bones. Had the infection involved more of the foot (to the ankle) and had there been poorer circulation, amputation through the thigh should have been done. With an infection that is non-gas-producing, which reaches the extent present in this case, more conservative therapy might be considered in an individual without much lymphangitis and with excellent circulation. Rapid control of the diabetes should be attempted while warm hypertonic soaks are applied to the area. If no extension of the infection occurs within twenty-four hours and the diabetes is not difficult to control, the conservatism might be continued for a similar period. Incisions for drainage are generally not necessary but small ones may be made through the webs. Blunt dissection and through and through drainage are absolutely contraindicated in the diabetic foot. Amputation of the toe or toes in which the infection originated is more desirable. In this manner, one might occasionally preserve a foot. However, this applies only to feet with excellent circulation and with infections which are not very extensive, and which do not continue to extend. Most infections of the deep fasciae spaces of the foot in the diabetic are uncontrollable and demand immediate amputation in order to prevent death from septicemia or diabetic coma. The site of amputation is determined by criteria already mentioned.

The method of dealing with infection and gangrene involving the entire foot such as that represented in Case 1 is immediate amputation, if permitted by the general condition of the patient.

Too often, the physician fails to realize that the middle aged arteriosclerotic individual suffers the same types of changes in his renal, cerebral, and coronary vessels as are present in the extremities and that prolonged absorption of toxins from a badly infected foot threatens the patient's life, not only by its effect on the carbohydrate metabolism as illustrated previously, but also by its effects upon the damaged heart and kidneys.

In all patients with diabetic infections of the extremity, septic blood cultures should be obtained. In any case in which there is a sudden increase in temperature or in severity of the diabetes as manifested by increased sugar excretion, the culture should be repeated even if infection has occurred. It might be well to point out here that blood sugar estimations are of very secondary importance. The metabolic defect should be controlled by careful daily qualitative analysis of the urine, all of the urine, not one or two specimens a day. The blood sugar fluctuates widely and its estimation is almost valueless. It is a matter of common observation that the blood sugar may be within normal limits before breakfast and yet the urine show large amounts of sugar during the day, indicating that the blood sugar has risen to very high levels. There is no space here for a discussion of this matter.

## SUMMARY

The problem of diabetic infections and gangrene is one of which volumes might be written. The purpose of the present paper has been to call attention to the peculiar nature of this problem and to the necessity for early, urgent and cooperative treatment by internist and surgeon.

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## DISCUSSION

Dr. James D. Rives (New Orleans): I was one of those who, until a few years ago, believed that the surgical diabetic had to wait for surgery only until proper medical treatment had been instituted. I have regretfully abandoned that position, largely because of experiences in which Dr. Gardberg and I participated. We have worked together in the colored wards of Charity Hospital from time to time for about six years, and have proved to our complete satisfaction that the very common infections and gangrene in our patients made the control of diabetes so difficult that it was frequently impossible under the conditions under which we had to work. Gangrene in the diabetic patient is so frequently complicated by infection that we cannot handle these cases as if they were simple senile gangrene in the diabetic. We have frequently seen these patients under proper medical treatment border on coma today and on insulin shock tomorrow, without any variation in the amount of insulin or diet, except for possible surreptitious feeding by the family. Consequently we have found it necessary to adopt a rather radical attitude toward these cases. My experience has been very largely limited to these cases in Charity Hospital where there is always a certain amount of uncertainty as to the amount of food actually consumed, due to the inability of a small nursing corps to keep an accurate check on the intake.

In those cases in which amputation is required there is a great deal of dispute as to the level at which it should be done. I am not in entire agreement with Dr. Gardberg on this point. I believe, and I have seen enough cases to support that belief, that amputations below the knee are practical in most diabetics with gangrene, provided that the circulation be adequate to support the extremity if diabetes were not present. The proper levels for amputation, however, are dictated by economic considerations and by practical considerations related to the wearing of artificial extremities. The lower extremity is the one usually involved. If the little toe, for example, is involved, nothing is to be gained by prolonged treatment calculated to save it because it is of so little value. If, on the other hand, the big toe is involved, every effort should be made to preserve it if the foot is to be saved. If the foot is to be crippled and useless the patient is better off without it. If it is to be stiff, subject to diminished blood supply, which makes it painful in cold weather and in changes of weather, and also susceptible to subsequent gangrene, amputation is preferable. Most Charity Hospital patients, particularly those of advanced age will have to wear peg legs for this purpose, and amputation below the knee is quite satisfactory since the kneeling position in the peg leg is the most stable as well as the most comfortable. A long segment of leg projecting behind the peg, on the other hand, is most undesirable. If amputation is done above the knee, the peg leg cannot be used at all, and the patient is doomed to crutches. We believe, therefore, that if amputation of the leg is necessary, every effort should be made to do that amputation at some point in the middle third, where there is a large bulk of muscle and the circulation is comparatively profuse. There is no advantage in an amputation below the middle third, since the stump in such cases is too long for a peg leg, and is also unsatisfactory from the standpoint of the artificial limb-maker. Amputation at this level leaves the bone covered only by skin which is rather poorly vascularized.

The thing which we need most to learn and which has not been well understood is that every one of these patients requires two medical attendants, an internist thoroughly versed in the treatment of diabetes and a surgeon thoroughly qualified in the treatment of surgical diabetics. It is rare that these qualities are combined in the same person. There may be some surgeons who know enough about diabetes, and there may be some internists who know enough about surgery, but I have not met either. The answer to this problem is that two men must work together constantly during the management of these cases.

When the internist informs the surgeon that the diabetes in a given case cannot be controlled so long as the infection or gangrene exists, whenever he informs him that the patient is in the best condition possible to attain, the surgeon must stand ready to undertake immediately whatever surgical procedure is indicated. No two patients act alike. No physician can promise to control the diabetes in a surgical diabetic throughout a period of 24 hours. The operation must be, therefore, an urgent emergency, and it must be carried out at once when the physician has succeeded in producing the best possible condition. If proper cooperation is to be achieved the internist must inform himself of the possibilities of surgery, and the surgeon must inform himself of the possibilities and limitations of the medical management of the diabetic in the presence of infection or gangrene.

Dr. I. Lemann (New Orleans): I am very glad that Dr. Gardberg has emphasized the metabolic point of view that one should take with regard to these infections in the diabetic. One must never forget that as far as metabolism is concerned, the diet of the patient is not altogether the food that he is taking. If the patient stops eating he continues to contribute to his maintenance from himself; he devours himself. If he stops taking carbohydrate, protein, and fat in his food, he eats his own protein and fat, and he is put into starvation by high fat diet. When protein is increased in the presence of infection he is on a still higher protein and fat diet. Dr. Gardberg is right, therefore, in insisting that in the presence of infection, insulin cannot be effective even, as he has put it, in unbelievable quantities, because the true diet of the patient under those conditions is extremely difficult.

I quite agree that these operations, the amputations of limbs in which infections are present, and the treatment of infections elsewhere in the body, as in the frank carbuncle in the back described by Dr. Gardberg, call for immediate attention. Too often we are still confronted in consultation with legs that are no better from continued infections through weeks because the doctor has had the idea that insulin will bring that patient into such a condition that an operation will be possible. Too often, therefore, this picture is presented to us where we are damned if we do, and we are damned if we do not. It is already too late to advise an operation, and if we advise further waiting, we are sure to yield even the small fraction of a chance that the patient may have.

On the other hand, I found myself fearing that Dr. Gardberg had given the idea that all patients with gangrene should have their legs off. I am sure he did not mean it, but I am afraid the pendulum may swing the other way, and, instead of giving a patient with dry gangrene a chance with conservative methods, that these legs will be taken off unnecessarily. As the doctor pointed out, the question of when to amputate and where to amputate is a very difficult one and in spite of the wealth of material that Dr. Gardberg has presented and the illustrative cases, I should say that neither he nor I can always say when the amputation should be done. I remember cases where I had advised against amputation, where the surgeon wanted to amputate, and I was right. I can remember where I wanted to have amputation done, and where the surgeon was reluctant, and the surgeon was right. It is a very difficult matter.

I do not think we can insist too much upon safe principles: One, that where the gangrene is dry and superficial we can wait. Two, that where there is infection amputation must be done. I am inclined to agree with the discussor. I believe that we must first above all not touch the foot; not undertake to amputate at all. Nor do I believe that it was justified to amputate through the foot I believe that you run too great a risk for too small an advantage. On the other hand, in most cases I should say it is not necessary to amputate through the thigh. In the majority of cases where amputation is necessary, amputation below the knee as Dr. Rives indicated, is proper. There is one indication for amputation that I believe neither Dr. Gardberg nor Dr. Rives emphasized adequately, and that is the matter of pain. I have seen patients who might have avoided amputations on the basis of safety, as regards the control of the diabetes, who had to have the amputation done because of the extreme pain. And finally, I wish to emphasize what Dr. Rives referred to, and that is the economic side of amputation. I think we must in some cases decide the site of the amputation upon the economic situation of the patient.

Dr. J. H. Musser (New Orleans): Dr. Gardberg has discussed the subject very completely. Dr. Rives and Dr. Lemann have added much. The only comment I would like to make is to disagree with Dr. Lemann. I think there is a tendency among the medical men, and the surgeons as well, to procrastinate and to hope that this wonderful substance, insulin, is going to do what it is supposed to. It is rather a serious problem to take off a patient's leg. I think for the main part that the mistake is made not in amputating but in waiting too long.

Dr. Urban Maes (New Orleans): I want to begin by emphasizing a point that Dr. Gardberg has already made, that diabetic gangrene is a condition which must be treated by both the internist and the surgeon. They cannot work independently. Insulin without surgery does no good, and surgery without insulin and other medical measures is likewise useless. Lives can be saved only by cooperation.

As to the treatment of gangrene, there are three possible courses. The first is no surgery at all. Conservative treatment is frequently possible when the gangrene involves only the toes. Indeed, hasty amputation for localized gangrene is to be deplored, for vigorous local treatment, combined with other measures, will often be all that is necessary. The second possible method is conservative amputation below the knee. In a large series of cases we have shown that this type of surgery is not associated with an undue mortality, and where circumstances warrant it, it ought to be employed. The loss of a limb is a serious matter for the patient, and the surgeon should hesitate before he resorts to mutilating surgery. The third possible method is amputation above the knee, and this procedure is attended with an inevitably high mortality. The old law that the mortality of amputation is in exact proportion to the nearness of the site to the trunk unfortunately has never been overturned. In a study of 171 cases of gangrene, Dr. Veal found the mortality of amputation below the knee to be about 37 per cent, while amputation above the knee carried a mortality of 55 per cent.

If the case is properly selected, amputation below the knee is a safe procedure. In this connection I should like to point out the interesting and valuable studies made by Dr. Veal. By visualization with injections of thorotrast he has been able to show the blood supply of the parts and to furnish us with sound criteria for determining the level of amputation. His work furnishes a partial explanation of the very considerable fall in the mortality of amputation on our own service.

In conclusion, I should like to point out the unwisdom of delaying amputation until the line of demarcation is evident. The medical man who delays calling the surgeon until that stage is going to furnish him with a large number of hopeless cases. Even the best of surgeons cannot save a patient who is hopelessly ill when he is first seen, and no matter how worthy are the motives of the internist, he risks his patient's life by such miscalled conservatism.

Dr. Manuel Gardberg (In conclusion): As Dr. Lemann has pointed out, I did not intend to convey the idea that I was in favor of amputating all extremities that were infected. I have had a couple of pretty bad ones that I have not amputated and which got along well without amputation.

The decision as to where to amputate depends on the condition of the circulation, the rate of spread of infection, the effect on the diabetes, and the effect on the patient otherwise. As far as the level of amputation is concerned, I did not mean to give the impression that they should all be amputated at the thigh. The particular case I had reference to had marked vascular disturbance. In such cases McKittrick followed the rule that amputation below any level of the middle of the thigh would be useless and would require further amputation. The mortality in multiple amputations of the same extremity is extremely high. The mortality of primary amputation through the thigh is considerably less than the mortality of two operations. The control of the level of amputation is, of course, a matter of considerable discussion. McKittrick has recently been amputating more patients through the upper third of the leg than he had dared to previously, and is very enthusiastic about the results he is getting.

Control of amputations in the diabetic with the use of thorotrast is something I have been afraid to attempt. My objections may be groundless, but experience with the effect of trauma is likely to fill one with a great deal of respect for diabetic tissue. The puncture of the femoral artery in these cases, an artery often already badly diseased, may not be without some danger, particularly if some little accident should occur, and if there should be infiltration of tissue with thorotrast, or or if a hematoma should be produced, (and these hematomata in diabetics have a habit of becoming infected) I am afraid the consequences might be fatal. I am entirely open-minded on that situation, and I intend to watch some of the work, but up to this time I have not had any experience with thorotrast.

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# A MODERN METHOD FOR THE LOCALIZATION AND TREATMENT OF INTRA-OCULAR FOREIGN BODIES*

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While presenting a modern method for the localization of intra-ocular foreign bodies, and describing the method of treatment of our selection, it is not with the purpose of discrediting the well established methods of the past, but to report some inaccuracies which have been observed.

Doctor Sweet's method of localization and its modifications are, or course, well known, but they require, as you know, expensive and intricate apparatus, which is infrequently used and impractical in the equipment of the eye physician and radiologist, in other than great industrial and medical centers.

The subject is of great importance as many intra-ocular foreign bodies opaque to the roentgen ray are non-magnetic. The diagnosis, therefore, comprises the following points:

1. Usually there is a history of a recent ocular injury.

2. As most intra-ocular foreign bodies enter through the anterior segment of the eye, the wound of entrance is observed. The anterior chamber may be opened, a traumatic cataract

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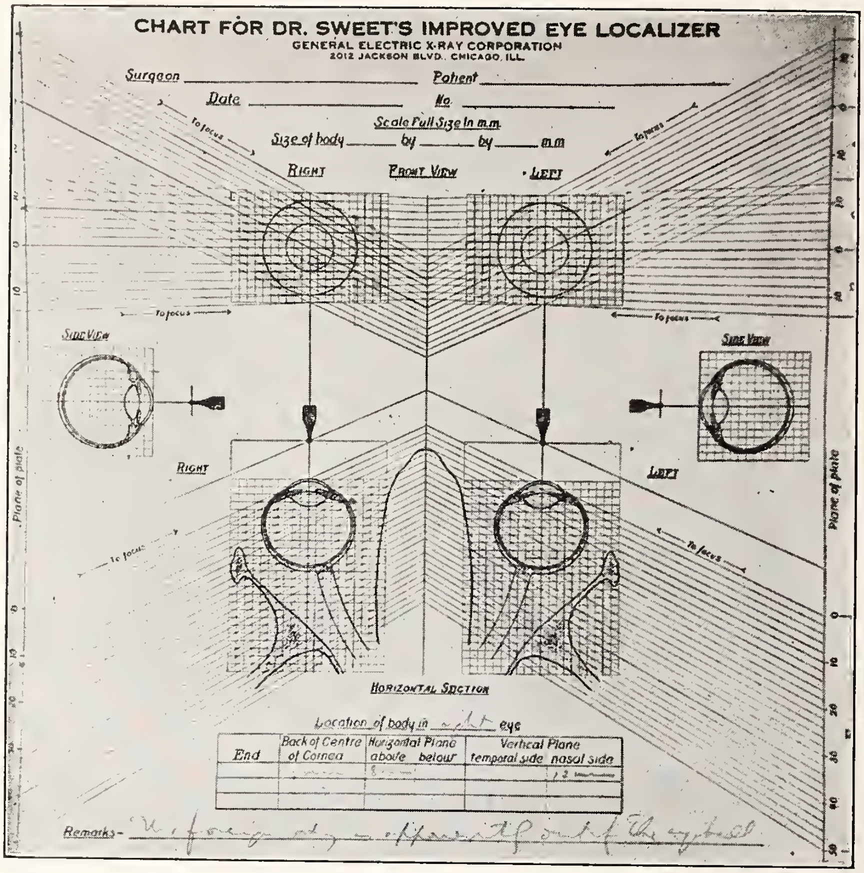
CHART FOR DR. SWEET'S IMPROVED EYE LOCALIZER
GENERAL ELECTRIC X-RAY CORPORATION
2012 JACKSON BLVD., CHICAGO, ILL.
Surgeon
Patient
Date
No.
Scale Full Size in m.m.
Size of body ___ by ___ by ___ m.m
To focus
RIGHT
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LEFT
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RIGHT
LEFT
Plane of plate
Plane of plate
HORIZONTAL SECTION
Location of body in ___ eye
End
Back of Centre of Cornea
Horizontal Plane above below
Vertical Plane temporal side nasal side
Remarks-

Fig. 1, Case 1

may be present with hemorrhage in the anterior chamber, laceration of the iris, and protrusion of same.

3. The ocular response to the magnetic impulse. When the tip of the giant magnet is placed in contact with and in the center of an eye containing an intra-ocular foreign body, upon closing the controlled electric current, the eye accommodates itself to parallelism, and the patient experiences pain. Where the foreign body is non-magnetic no such ocular movement is observed and there is no pain. It is, therefore, apparent that the ocular response to the magnetic impulse demonstrates the presence of a magnetic foreign body within the eyeball. Where there is no response, the foreign body may be within the eyeball, but of non-magnetic element, or may have passed through the eyeball into the orbital cavity.

4. Roentgen ray studies: Many observers have reported the use of two exposures upon one film and Verwey in 1924 reported his method of "localization of a foreign body in the eye in relation to the rotation center." It escaped my attention, however, when the present method was evaluated. A lateral radiologic study is made to determine the presence or absence of a foreign body within the orbit. Should one be found a double exposure picture is made in the posterior-anterior position. The patient's face is placed upon the film while the eyes are directed downward, the current is closed for the exposure, the eyes are then directed upward and the second exposure is made. Should two objects be observed upon the film, the foreign body is positively within the eyeball; should only one object be seen, the foreign body is extra-ocular or intra-ocular at the center of rotation. In such a case the eyes are moved from right to left.

The posterior-anterior view is used instead of the usual anterior posterior position in order to get the maximum sharpness of the foreign body with the least distortion and magnifica-

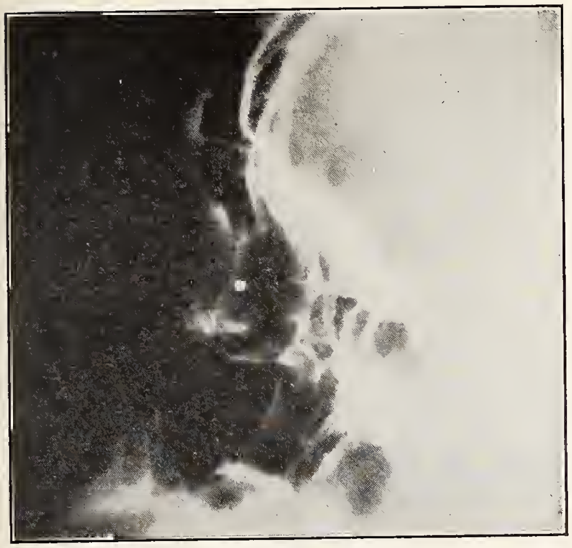

Fig. 2, Case 2

Lateral study showing metallic foreign body in the orbit.

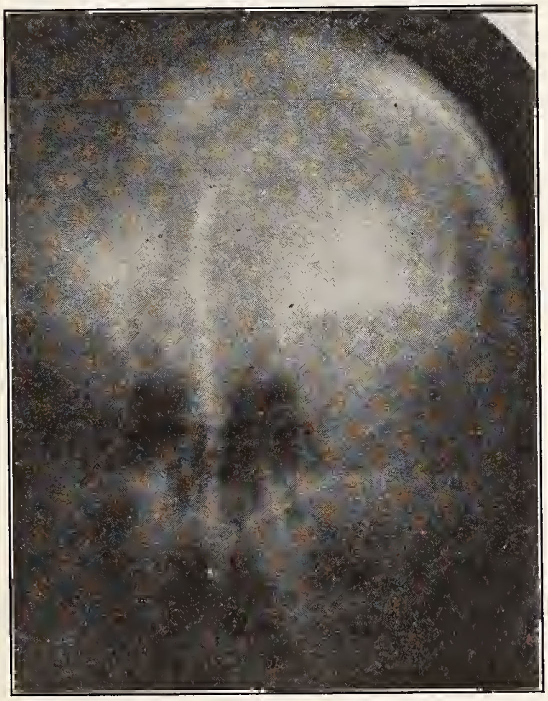

Fig. 3, Case 2

Double exposure method in the posterior-anterior position showing non-magnetic foreign body within the eyeball.

tion. The usual anterior-posterior view offers more magnification and distortion with less sharpness of the foreign body.

The patient is placed upon the operating table in the recumbent position near the magnet, instead of standing before it. The magnet is manipulated to a point directly over the center of the cornea, with its tip in contact with that membrane.

As the current is slowly closed, a sensation of pain is experienced when the foreign body begins to move upward. The current is reduced in order to permit the foreign body to be drawn slowly around the lens through the zonula of Zinn until it appears behind the iris, which it causes to bulge. The current is opened as quickly as possible or the magnet is raised to prevent injury to the iris. The current is again slowly closed while the magnet is gently manipulated to draw the foreign body into the anterior chamber through the pupil. The anterior chamber is then opened at axis 90° with a keratome, the tip of the giant magnet is removed and the Victor flexible extension is attached, which reduces the magnetic force from the giant type to a small one. The flexible tip is introduced into the anterior chamber, the current is closed slowly and the foreign body is gently withdrawn.

It often occurs that the foreign body cannot be drawn into the anterior chamber because the pupil cannot be dilated or the piece of metal is jagged and becomes entangled in the folds of the iris. In such a case an iridectomy is performed and the piece of metal is delivered through the coloboma.

It is erroneous to suppose that removal of intra-ocular foreign bodies by the method just. described produces injury to the lens or capsule. Of course, the lines of magnetic force pulling from one end of the giant magnet to the other under ordinary conditions must necessarily pull in parallel lines when the tip of the magnet is placed in contact with and in the center of the cornea. The course of the foreign body is parallel as it passes through the vitreous, but becomes deflected when it reaches the lens because it passed from a medium of lesser resistance (vitreous) to a greater one (lens), the surface of which is biconvex and elastic.

In cases where the wound of entrance is in the cornea and the piece of steel has passed through the capsule and lens with the aqueous and vitreous in contact with the lens fibers, cloudy swelling and later disintegration with softening follows (traumatic cataract), thus reducing the resistence of the lens. The piece of metal following parallel lines enters the anterior chamber through the softened lens. The hand magnet is useful in those cases when very small fragments of magnetic metal are near the surface and when the patient has come under treatment 24 hours following the injury, before exudates have formed.

Intra-ocular metallic foreign bodies are not removed through the posterior route because the retinal detachment, which usually follows such procedure, renders the eye sightless. (Case history number 5). Doctor Verhoeff prefers the anterior route after thirty years' experience believing it to be the safest procedure. Statistics from the Herman Knapp Memorial Eye Hospital, as reported by Walter F. Duggan in 1933, show 30.6 per cent retinal detachments following scleral wounds and only 4.7 per cent in cases without scleral wounds, accidental or operative.

In order further to elaborate the method of Haab (anterior chamber route), advocated in this paper, small pieces of broken surgical needles were inserted posteriorly into 25 fresh pigs' eyes near the entrance of the optic nerve and pushed into the eyeball, after which the technic described in this paper was employed. After the foreign bodies were drawn into the anterior chamber the eyes were sectioned and in no case was the lenticular capsule or lens injured, the piece of steel having passed around the lens.

### CASE REPORTS

Case 1. P. H., a white man, married, aged 26, a truck driver, was injured while repairing an axle. A fragment of steel entered the right eye near the limbus on the nasal side, July 15, 1932. He applied for treatment in the outdoor clinic of the Eye, Ear, Nose and Throat Hospital. The interne's clinical notes state that the patient came in as an emergency case, was admitted to the hospital and no foreign body could be seen with the ophthalmoscope because of blood in the anterior chamber. Sedatives were ordered and he was sent to the radiologic laboratory for study July 16, 1932.

Fig. 1 shows the chart for Doctor Sweet's improved eye localizer as interpreted by the staff radiologist, showing clearly "the foreign body apparently out of the eyeball." The eye was anesthetized and placed in position before the giant magnet. The electric current was then closed and the piece of steel was drawn around the lens and under the iris, becoming entangled within its structure. An incision was made in the cornea at axis 90° with a keratome, the iris was withdrawn and excised, the Victor flexible extension was attached to the magnet and the small end was placed in the anterior chamber. The current was gently closed while the foreign body was removed. The iris pillars were replaced, atropine instilled, the eye bandaged, and the patient returned to the ward.

July 17, 1932, routine inspection was made. The pillars were in position. The usual reaction incident to these procedures was observed. One per cent atropine solution was instilled.

July 18, 1932, the reaction was subsiding, atropine was instilled and the eye bandaged. Between July 19, 1932, and July 22, 1932, he improved. On July 23, 1932, there were no signs of a traumatic cataract. On July 25, 1932, he was permitted to go home, the bandage removed. The reaction was subsiding. He was to attend the outdoor clinic and when he reported on August 1, 1932, the eye was quiet. Vision was 20/60. The eyes were to be refracted. August 5, 1932, the patient discontinued treatment, against advice.

March 8, 1933, central vision in the right eye was 20/60: 6/18; 30.0 visual loss. In the left eye it was 20/30: 6/9; 8.6 visual loss. The eye was quiet. He complained of photophobia from glare. Cruxite shade "B" was prescribed with correcting lens, which brought central vision to 20/20: 6/6. He had 100 per cent efficiency in each eye.

Case 2. E. R., a colored man from Laplace, Louisiana, four days previous to admission, was struck by something in the left eye. He received first aid at the Eye, Ear, Nose and Throat Hospital September 29, 1932. The left eye presented marked conjunctival irritation. The cornea was clear. There was a wound in the sclera 3 mm. to the left at 3 o'clock of the dial on the temporal side about 2 mm. in diameter. The anterior chamber was filled with blood. Intra-ocular tension was minus. There was no light perception or projection. Posterior anterior study with double exposure showed the presence of an intra-ocular foreign body. (See Figs. 2 and 3).

On September 30, 1932, the eye was enucleated and on October 2, 1932, he was discharged.

Case 3. G. W., aged 23, was struck in the right eye with birdshot while hunting, 72 hours before his admission. The right eye showed a cloudy and perforated cornea with a collapsed anterior chamber. The wound of entrance was in the center of the cornea, the lens fibers were in the stage of disintegration. Intra-ocular tension was minus. There was no light perception or projection. The eyeball was enucleated. Upon section the shot was found within the eyeball. (See Figs. 4 and 5).

Case 4. J. B., was struck in the right eye by a shot. The wound of entrance went through the cornea on the temporal side. Vitreous and blood

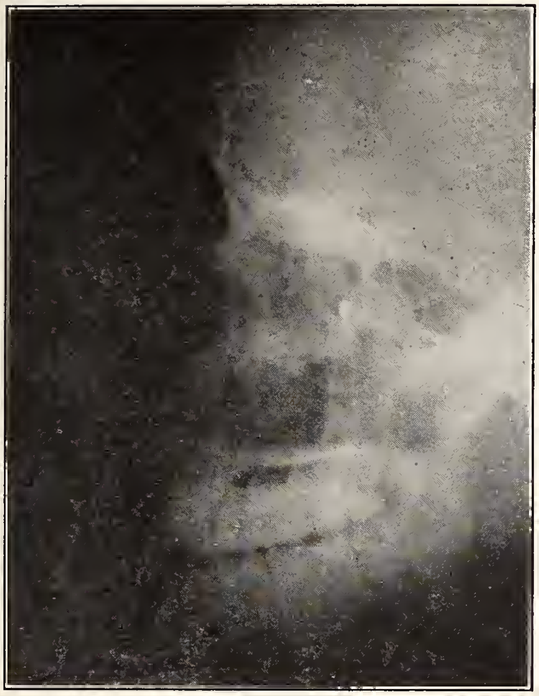

Fig. 4, Case 3

Lateral study showing the presence of a non-magnetic foreign body.

protruded from the wound. The eyeball was soft. There was no light perception or projection. Double exposure, posterior-anterior view showed the shot within the eyeball. This was made to check Dr. Sweet's localizer, which placed the shot 12 mm. behind the center of the cornea. The eye was enucleated. Upon section the shot was anterior to the central plane and below. (See Fig. 6).

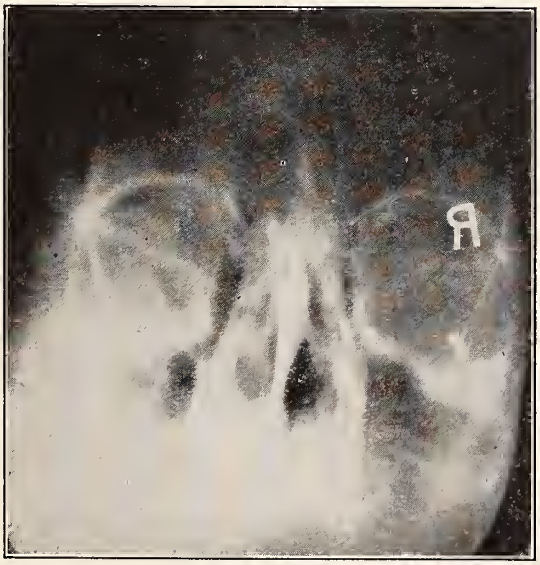

Fig. 5, Case 3

A double exposure posterior-anterior study showing the foreign body within the eyeball.

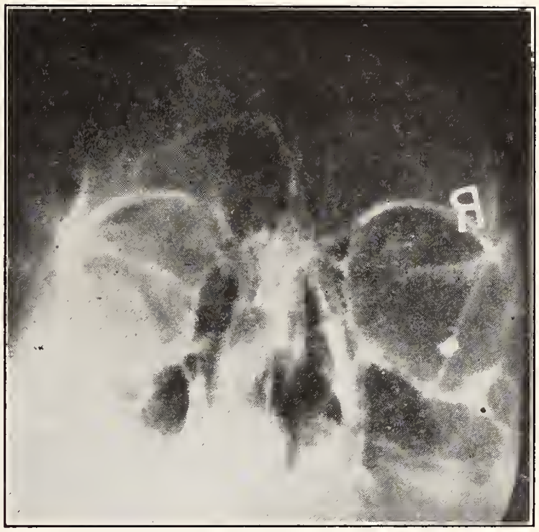

Fig. 6, Case 4

Double exposure method showing a bird shot within the eyeball near the central plane.

## TRAUMATIC RUPTURE OF THE PAPILLARY MUSCLES OF THE MITRAL VALVES

### A CASE REPORT*

W. C. PAYNE, M. D.
Pensacola, Fla.
AND
H. H. HARDY, JR., M. D.
New Orleans

Rupture of the papillary muscles of the heart is such an unusual occurrence that the following case is reported:

### CASE REPORT

B. W., a white male, aged 51, was admitted to the accident room of the Pensacola Hospital, Pensacola, Florida, February 29, 1936, with a meagre history that he was an employee of an industrial plant in the city and while on duty on the second floor of the plant that morning a belt had slipped from its pulley on the first floor and he went below to re-apply the belt. He was alone on the ground floor, standing near the pulley when one of his fellow workers, who was on the floor above him, glanced through a hole in the floor and saw him suddenly fall. Realizing that something was wrong he rushed to his assistance and found the patient lying on the floor, apparently dead. It was found on close examination that the patient was not dead, but unconscious. An ambulance was called but before its arrival the patient began calling for help and exhibited a state of mild mania and was unable to explain what had happened. He was rushed to the hospital and en route manual restraint was necessary to maintain him on the ambulance stretcher.

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*From the Surgical Service, Pensacola Hospital, Pensacola, Florida.

In the accident room the patient continued to cry out for help, required restraint to hold him on the examining table, was semi-comatose, gasping for breath and his facial expression was one of agony and extreme apprehensiveness. Cyanosis was marked. There was no evidence of bleeding nor gross injury. The pulse was weak, thready, and too rapid to count. The blood pressure could not be recorded, and respiration was shallow, labored, and rapid. The skin was cold, clammy, and perspired freely. The entire picture was one of extreme shock.

Careful physical examination showed no signs of violence about the head or neck and no gross evidence of injury to the body or extremities. The pupils were normal in size and shape and reacted to light. There was no bleeding from the nasal, aural, or oral orifices. The lungs were clear and resonant throughout. The heart tones were very faint, rapid, and distant. Abdominal rigidity was absent. All reflexes were essentially normal. Antishock measures were rapidly instituted: morphine, external heat, glucose 5 per cent and normal saline as an infusion, cardiac and respiratory stimulants. Despite these measures his condition rapidly became progressively worse and he expired thirty minutes after admission, approximately one hour after having been striken.

Postmortem examination revealed the following: Gross examination of the body showed a well nourished, well developed male of about fifty years. No gross external evidence of disease nor injury was noted. The abdomen was opened and the peritoneum was shiny and glistening, free from adhesions and containing only the normal amount of free peritoneal fluid. All abdominal organs were normal in every respect.

The bladder was catheterized and only 1 c.c. of normal urine obtained. The skin was next dissected from the chest wall. A diffuse beginning ecchymotic area presented in the subcutaneous tissues over the third, fourth, fifth, and sixth ribs in the left midclavicular line. The third rib was fractured 2 cm. from its chondral junction. The fourth rib was separated at its costochondral junction. A transverse fracture of the sternum was found at the level of the third interspace without displacement. There was no effusion in either pleural cavity. The lungs were not collapsed. There was a small ecchymotic area 2.5 cm. by 2.5 cm. on the anterior surface of the left lung where it covered the left border of the heart. The pericardium presented a corresponding, subjacent, ecchymotic area over its anterior aspect 3 cm. above the apex. The pericardial sac was free from adhesions and contained about 20 c.c. of blood stained fluid. There was a marked contusion and ecchymosis over an area about 3 cm. in diameter on the anterior wall of the left ventricle. Intracardial pathology was confined to the left ventricle. Its anterior papillary muscle was ruptured at the endocardial attachment with the base lying free in the ventricular cavity. The posterior papillary muscle was only partially ruptured at its base. There was no damage to the mitral cusps nor the chordae tendinae. The coronary arteries were normal and no areas of infarction were found in the heart. No other pathology of note was found in the thoracic cavity and the cranial cavity was not opened (requested by the family).

## DISCUSSION

In view of the pathologic findings and clinical history available it would appear that to throw on a belt to a rotating pulley this man used a large stick, and that in his attempt to apply the belt the stick became entangled in the machinery, striking him over the precordium. Such a stick was found at his side. When injured he was wearing a woolen union suit, shirt, sweater, overalls, and a leather coat. The thickness of these clothes absorbed the force of the blow, thus accounting for the lack of external evidence of injury on the chest wall.

Anatomically, the mitral valve lies posterior to the left margin of the sternum and its junction with the third rib, which area was directly posterior to the fractures present. Thus the maximum impact of the blow must have been directly over the mitral valve. It seems most reasonable to assume that the blow was received at that instant when the left ventricle was at the onset of systole, being at that time a closed cavity with the mitral valve shut. The sudden force of the blow increased the intraventricular pressure and rupture occurred at the point of least resistance, in this case the bases of the papillary muscles.

A review of the literature revealed only eight other cases. Wankel,[1] in 1911, reported a case and in a review of the literature found only four other cases. In the same year Teacher[2] reported one case. Four of these six cases showed a sclerosis of the coronary arteries and in two there was a thrombosis of these vessels. In one case they were reported as being negative, in another no mention of their condition was made. In 1921, Spalding and van Glahn[3] reported a case of rupture of the posterior papillary muscle occurring spontaneously. On microscopic examination they found Treponema pallida in the sections taken from the end of the ruptured muscle. Fisher,[4] in 1922, reported a case of rupture of the papillary muscle associated with a coronary sclerosis. This patient survived for ten months. Van Glahn and Horowitz[5] reported a case in 1923, in which they found an infarction of the right and left ventricles and infarction at the site of rupture of the posterior papillary muscle. In addition there was sclerosis of the coronary arteries and a thrombosis of the right coronary artery.

In none of these cases was a history of trauma mentioned, all occurring spontaneously, in marked contrast to our case which had a traumatic basis and hence is the first case of traumatic rupture of the papillary muscles reported. In addition, in our case both the anterior and posterior muscles were ruptured, while in those reported the damage was limited to only one papillary muscle.

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3. Spalding, E. D. and van Glahn, W. C.: Syphilitic rupture of a papillary muscle of the heart, Johns Hopkins Hosp. Bull., 32:30, 1921.
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## THE GRADUATE MEDICAL ASSEMBLY

Again we want to call attention to the important convocation that is going to be held in New Orleans next March. A reiteration of this is not inappropriate because not everybody, strange to say, reads the editorial columns of the Journal. To those who have not read what has been printed prior to this, we would again state that at this clinical meeting there will be collected together as fine a group of clinicians in all specialties of medicine as have ever appeared before such a meeting. These men come from all over the country and have been selected for their ability as teachers, as speakers and as outstanding workers in their special fields. They are prepared to give not only formal addresses but are expected also to participate in dry clinics and round table discussions. It will be not only a professional treat to hear these men but also it will be a real education. The completed program subject to minor alterations and changes will be found on page 390 and following pages.

Write the date in your engagement book; make arrangements now to attend this meeting. It will be well worth the time and the expense from the viewpoint of education, broadening of the mind, and sociability.

## THE NEW YEAR

It is the pleasure of the Journal to wish to its readers a prosperous and happy New Year. May the next twelve months prove to you all the best that you have ever experienced physically, mentally and economically.

With the clearing of the clouds of financial distress that have gripped this country for the past five years undoubtedly the medical profession will be able to have a year which will free them from the worries and strain of financial difficulties, suffered in the last few years, not only by our profession, but by all professions and many to a much greater degree than the medical world has felt. Perhaps with the increasing number of men going into gainful work and occupations, although the rolls of those dependent upon the Government for material assistance do not seem to be markedly diminished, there will be less danger of the Government undertaking to enter the medical profession as a third party interested in giving medical aid to the detriment of the physician. Although the economic situation seems to be alleviated to a certain degree, nevertheless the medical profession must be continuously on the alert. It is at such a time as now when the possibility of forcing state medicine down the throats of the medical profession seems to be far distant that it may actually develop. In spite of the apparent remoteness of such a possibility it will never do for us to go to sleep at this time, or any time, because this idea of state medicine will certainly blossom forth sometime and be thrust upon us possibly, in spite of our unwillingness to accept it, with all its harmful, obnoxious and disagreeable features.

## DISEASES OF THE SPLEEN

A most interesting contribution which has emanated from the Combined Clinic in Splenopathy of the Vanderbilt Clinic and Presbyterian Hospital appeared in a recent number of the Journal of the American Medical Association.* This presentation illustrates well the value of intensive study of any condition or conditions which are usually looked upon as being of comparative minor moment. The first part of this symposium is by Whipple and shows the types of splenic disease that have been observed in six years. Banti's disease, purpura and hemolytic jaundice are by far the most common, representing nearly three-fourths of the 200 cases studied.

The second paper, by Thompson, has to do with hemolytic jaundice. The outstanding observation made by this writer is that there are two expressions of this particular syndrome, typical hemolytic jaundice which is a clear-cut, definite entity, completely and pemanently cured by splenectomy; atypical hemolytic anemia includes a mixed collection of disease expressions associated with increased red cell destruction. These conditions are not relieved by splenectomy.

The third paper by Brown and Elliott on purpura gives a very complete outline report of cases of this particular condition. The patients were carefully studied and the treatment decided upon only after group consultation. These authors show that in thrombocytopenic purpura, with careful pre-operative treatment, splenectomy will cure and has only a low operative mortality. The improvement that takes place following operation is such that conservative treatment does not seem to be the proper form of therapy. Even if these patients have to undergo a major operation the improvement, according to the authors, justifies the risk.

The last contribution from this clinic, by Rousselot, has to do with Banti's syndrome. It is particularly thought-provocative because the pathologic physiology and the mechanism of production of the syndrome are adequately analyzed. This author feels that portal hypertension is present in all cases of Banti's syndrome. It may be due, as in 16 of his 31 cases, to a definite obstructive factor, which may be one of several intra-abdominal disorders. In this condition, Banti's disease, splenectomy is rather definitely indicated provided there is not severe antecedent liver damage.

The various authors quoted have demonstrated definitely that of the three most common causes of splenopathy the removal of the offending organ is of paramount importance for continuation of a healthy life. The selection of the patients for this procedure is a matter of cooperation and discussion between the surgeons and clinicians. The proper choosing of appropriate cases brings about a cure of the disease with a minimal amount of operative danger.

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*Whipple, A. O.: Studies in splenopathy, J. A. M. A., 107:1775, 1936.

Thompson, W. P.: Hemolytic jaundice, ibid. p. 1776.

Brown, D. N. and Egerton, R. H.: The results of splenectomy in thrombocytopenic purpura, ibid. p. 1781.

Rousselot, L. M.: The role of congestion (portal hypertension) in so-called Banti's syndrome, ibid. p. 1788.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

GRADUATE SCHOOL
LOUISIANA STATE UNIVERSITY
MEDICAL CENTER
New Orleans

The scientific meeting of December, 1936, was called by Doctor J. T. Nix, Director of the Graduate School. Doctors J. S. George and P. K. Champion presented the following paper:

## TRENDS IN THERAPY OF CERVICAL CARCINOMA

### A SURVEY OF LITERATURE

After brief inspection of the recent literature on the treatment of cervical carcinoma, it is evident that the methods in use are as numerous as the number of cancer clinics. Todd[2], attempting simplification, and believing many of the variations were refinements in technic and of minor importance, formulated the following classification:

1. The American School—high intensity, short application.
2. French—the Requard School—low intensity, long continuous application.

3. Scandinavian—Heyman School—high intensity, short intermittent application.

Both the latter employ 7000-8000 mg. hours. The cures reported by the Marie Curie Clinic at Paris are slightly higher than American Clinics, but the margin is slight. In evaluating the advantage one must remember the long experience and the great resources that they possess, and not be unduly influenced in favor of one plan of treatment.

In judging the results from the various clinics, it is necessary to take into consideration the personal variation as to the degree of extension as well as the type of classification. In this country either the Schmitz or the League of Nations are commonly employed, the former more frequently, but a simpler method and more fool-proof is a division into early and late. The former is equivalent to Schmitz I and II and League of Nations I and early II. The advanced group takes care of all the others.

Table I presents the five year cures of cancer clinics in this country in comparison to the Radium Institute at Paris. It illustrates vividly the excellent results obtained in early cervical carcinoma and shows how helpless therapy is in advanced cases. The tendency to report results in terms of operable and inoperable and use of the League of Nations classification, makes comparison difficult. The general adoption of the universal classification would facilitate correct evaluation of technical changes and aid progress.

Five Year Cures

| | Clinical Stages | | | | | | |
|---|---|---|---|---|---|---|---|
| Schmitz | I | II | III | IV | I&II | III&IV | Total |
| Schmitz[9] | 80 | 41.9 | 16 | 1.7 | | | 19.14 |
| Ward[11] 1919-30 | 70 | 52.8 | 21.1 | 0 | 54.5 | 18.5 | ‡18.5 |
| Lynch & Bartlett[18] 1916-27 | 89.5 | 40.6 | 12.8 | 0 | 58.8 | 8.2 | 22.2 |
| *Healy[19] 1924 | 58 | 26 | 14.3 | 0 | | | ‡20 |
| League of Nations | | | | | | | |
| Lacassagne[20] 1923-26 Paris Radium Institute | 86 | 42 | 30 | 1.5 | | | 33 |

*Classifies as early, border-line, advanced and palliative.
‡Absolute.

In treating cervical carcinoma, certain definite trends are apparent and may be summarized as follows:

1. The replacement of surgery by radiation.
2. The employment of more intensive radiation.
3. The adoption of the multiple dose roentgen therapy which until recently (1932) was only used in Europe.

At that time, Memorial Hospital[3] introduced it into this country and started their experimental research to increase the amount of radiation delivered to the pelvis. The future advancement lies in improved method of increased radiation to the parametrium. It[3] is estimated that 6-8 threshold erythema doses are required to cause regression of the parametrial extension and with this dose, with our present equipment, there is danger to the surrounding viscera in addition to the skin. With our present 200 K. V. machines, only 3-5 threshold erythema doses can be delivered safely. Eight hundred K. V. units are being experimented with but their definite value cannot be foretold as yet. Everting spongy types, infected sloughing craters and advanced cases respond to a cycle of roentgen radiation better than to radium and this facilitates the introduction of the latter. This will also lessen morbidity in post-radiation complications. Healy[3] has stressed the danger of the maximum roentgen dose in obese patients. The fatty panniculus may become indurated and finally liquify. Healing then is very protracted. In the very advanced cases, in spite of extensive radiation, recurrences occur frequently within several months and the associated discomfort makes the prolongation of life questionable. Small palliative radiation to lessen discharge is better suited. Healy[3] noticed clinically that in cases that were submitted to roentgen ray therapy immediately following radium application, the incidence of post-radiation complications was greatly increased. These phenomena occurred with such frequency that he advocates a free interval of several weeks. This rest enables the tissue to better withstand the following radiaion and reduces the sequelae.

## TISSUE REACTION

The reaction of different histological types to radiation has been subject of much discussion and investigation and it is difficult to arrive at any definite conclusion. Most investigators carefully straddle the fence but give the impression that the histological type should not influence the treatment as to surgery or extensive radiation. Chambers[5] reports the highest per cent of cures in his grade III transitional, but the advantage is slight. The difference in either local cures or three year survivals of any of the histological type never exceeds 15 per cent. Auer[6] fails to find any significant variation in the reaction of the various grades to radiation[7]. In this institution, cervical carcinomas are graded transitional I, II, III, IV; grade I, presenting the most adult and differentiated form, grade IV the most anaplastic.

The great majority falling into grades II and III, 60 per cent. This distribution is generally accredited correct. The separation of the intermediate types between the anaplastic and the adult is frequently omitted. However, both classifications have their adherents.

### SCREENING

With an attempt to increase the intensity of radiation, it was soon apparent that the Beta rays and soft Gamma rays caused excessive slough formation with a greater incidence of post-radiation fistulae formation. Auer[6] recently clearly showed that with little screening, 1 mm. of brass, the soft rays were only partly removed, resulting in extensive death of normal tissue as well as the neoplastic cells. The extensive fibrosis which developed inhibited proper vascularization of the regenerating epithelium prolonging healing, and promoting the chances of infection in the devitalized tissue. Greater filtering is thus advocated and filters of 2 mm. of gold or platinum, equivalent to about 4½ mm. of brass are considered as optimal. The advisability of using still greater screening is questionable as with the increase of filtration the hard Gamma rays are removed as well as the soft rays and the length of application must be correspondingly increased. To insure[8] complete removal of the soft Gamma rays, 11 mm. of platinum are required and through such a screen only 37 per cent of the hard rays will pass. The clumsiness of such a capsule, difficulty of application, and increased exposure necessary, renders such a filter useless clinically. The filtration in use at the leading cancer clinics is:

| | |
|---|---|
| Healy[3], Memorial Hospital | 2mm. of gold |
| Tausig[6], Barnard Free Skin and Cancer | 2mm. of gold |
| Schmitz[9], Mercy Hospital, Chicago | 2mm. of brass |
| Ward[1], Women's Hospital, New York City | 1mm. of platinum |

### DOSAGE

The question of the amount of radiation to be received in the initial course, whether in divided doses or one large massive dose, must vary with the case, but it is fair to assume that a minimum of 4000-4500 mg. hrs. is required to cure an average early case. Auer[6] showed in a series he reported that those cases that received less than 4500 mg. hrs. of radiation had a local recurrence of 50 per cent as compared to a local recurrence of 14 per cent if over 4500 mg. hrs. were used. Thus we should not be afraid to employ heavy radiation as this is required to insure eradication of the local lesion. The inadequacy of administering 1200-2400 mg. hours to control the initial lesion has been well demonstrated in this hospital, where we have to deal with patients too ignorant to realize the seriousness of their condition and once having returned to their rural homes never appear again until the disease has hopelessly progressed. The procuring of the old hospital records will inevitably disclose the use of 1500-2500 mg. hours of radium as the only treatment employed. The adage that "God helps them that help themselves," certainly applies to the woman who on questioning frankly admits irregular intermenstrual vaginal bleeding for the past year without seeking the advice of a doctor.

### METHOD MODIFICATIONS

In addition to the intracervical application of radium which has been discussed, various other refinements have been introduced in recent years. Of these the colpostat seems to be most promising. With this instrument a focus of radiation can be placed into each fornix with resulting radiation to the vaginal mucous membrane, portio of cervix, parametrium and surrounding structures. Arneson[15] has carefully determined the optimal radiation and advocates one third the intracervical dose in each fornix. Utilization of at least 2 mm. of platinum as a filter is advised. Another modification that has been proved to be of definite value is the use of the platinum needles. These may be inserted into the growth or at the cervico-vaginal junction. Healy[4] warns against a possibility of aiding the spread of the cancer cells in the healthy tissue and feels that this should be withheld until after the tissues have received radiaion therapy. It is most applicable for local recurrences.

### TUMOR CLINIC TECHNIC

The technic of treatment of cervico-carcinoma is devised by the consultation of the Tumor Clinic Staff. These individual recommendations accompany the patient when admitted to the hospital. The usual procedure is as follows:

This plan was devised to enable the administration of sufficient radiation without increasing the danger of post-radiation complications, in particular fistulae and sloughs, with the use of 2 mm. of brass as a filter. The essential point in the treatment is the application of a divided dose of radium with a roentgen ray cycle interposed. To complete the first course of treatment the patient should have received 8800 roentgen units and 4800 mg. hrs. of radium. This is divided into four quarters, 4400 roentgen units and 2400 mg. hrs. of radium, each comprising one quarter. Whether a roentgen ray cycle or radium is first administered, depends on the individual case. As a general rule in patients with clinical stage I or II and relatively free of infection, the radium is applied first. Reciprocally in advanced or infected cases, a cycle of 4400 roentgen units is preferred. If the radium is applied first this is then followed with the roentgen ray cycle, on completion of this the patient returns to the hospital and receives a second radium application, 2400 mg. hrs. which again is followed by a similar roentgen ray cycle of 4800 roentgen units. The patient is then followed in the Tumor Clinic from where further treatment is outlined.

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Early and clean cases | Radium 2400 mg. hrs. | X-ray 4800 roentgen | Radium 2400 mg hrs. | X-ray 4800 roentgen |
| Advanced, and or infected cases | X-ray 4800 roentgen | Radium 2400 mg. hrs | X-ray 4800 roentgen | Radium 2400 mg. hrs. |

Totals X-ray —8800 roentgen units
Radium—4800 mg. hrs.

In a considerable number of patients the disease has so hopelessly progressed that the application of radium is impossible. Subjecting these patients to an intensive multiple dose roentgen therapy has proved injurious. The primary growth cannot be eradicated and renewed neoplastic activity in this dense fibrotic tissue generally occurs within a few months causing unnecessary suffering with occasional extensive slough forming. Palliative reduced deep therapy is administered. This will frequently relieve the annoying discharge and give some relief. Large foul discharging craters require frequently a rest period following the preliminary roentgen ray cycle before the radium can be applied.

ROENTGEN RAY UNIT

The deep roentgen ray unit is a 200 K.V. machine with a target distance of 50 cm. Filtration consists of ½ mm. of copper and 1 mm. of aluminum. It is appreciated that the filtration is inadequate and the target distance should preferably be greater, but this is impossible in view of the number of patients that must be treated. The preferred conditions would so increase the time of exposure necessary that with one air-cooled roentgen ray unit only a few patients could be satisfactorily treated.

Table II is self-explanatory and shows the large number of yearly admissions. The frequency of carcinoma of the uterus in relation to total gynecological admissions appears high. No explanation can be offered at this time. We were unable to separate carcinoma of the uterus but it is estimated that over 95 per cent were carcinoma of the cervix.

Table II

| | Carcinoma of Uterus | | | Results | | | Total Gyn. Admissions | Ca. of Uterus as per cent of Admission |
|---|---|---|---|---|---|---|---|---|
| | W | C | Total | Imp. | Sta. | Died | | |
| 1927 | 112 | 194 | 306 | 160 | 128 | 18 | 2,858 | 10.7 |
| 1928 | 145 | 206 | 351 | 129 | 214 | 7 | 2,986 | 11.7 |
| 1929 | 200 | 222 | 422 | 211 | 198 | 13 | 3,817 | 11.0 |
| 1930 | 239 | 259 | 498 | 211 | 274 | 12 | 4,575 | 10.7 |
| 1931 | 288 | 290 | 578 | 214 | 340 | 21 | 4,655 | 12.4 |
| 1932 | 230 | 228 | 458 | 168 | 270 | 19 | 4,584 | 9.9 |
| 1933 | 233 | 222 | 455 | 215 | 219 | 18 | 5,693 | 7.9 |
| *1934 | 134 | 105 | 239 | 115 | 115 | 6 | 3,157 | 7.5 |
| ‡1935 | 282 | 239 | 521 | 193 | 289 | 39 | 7,564 | 6.9 |
| 1936 | 229 | 250 | 479 | 147 | 309 | 23 | 7,750 | 6.1 |
| | | | | | | | | 9.4 average |

*From January to July 1, 1934.

‡Reports tabulated from July 1 to June 30 of following year.

The radium is filtered as present with 2 mm. of brass and exists in 50 mg. capsules. One hundred mg., if available, is inserted in one application in tandem. The packing off of the rectum and bladder is carefully attended to; the packs are moistened with merthiolate as this has a tendency to lessen infection. A retention catheter is routinely used to insure complete evacuation of the bladder.

The advantages derived from this method of application are:

1. Increased skin tolerance to roentgen ray.
2. Reduction of post-radiation complication particularly fistulae and sloughs.
3. Permits adequate radium application in spite of sub-optimal filtering.

Any outline or plan of treatment, though it may be applicable to a great majority of cases, must be altered in many instances. Every carcinoma of the cervix is individualized and modifications are introduced as necessary.

The greatest difficulty encountered is the follow-up. After one course of radium and roentgen ray the subjective complaints are frequently relieved and as the patient may live as far as 300 miles away, the need to return is seldom felt in spite of repeated notifications.

## CONCLUSION

In conclusion, we realize that this method of treatment is not ideal, but with the present equipment, we believe yields the greatest percentage of cures that is possible. The tremendous number of patients and the limited facilities available necessitates tactics which are far from perfect. We are referring in particular to the target distance and filtering of the roentgen ray machine, and screening of the radium. We anticipate future innovations.

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## HUTCHISON MEMORIAL CLINIC

*Symposium on Peptic Ulcer*: Conducted by the Department of Surgery, Dr. Mims Gage presiding. The discussion in part was as follows:

The Physiology of the Stomach and Duodenum as it Pertains to Peptic Ulcer—Dr. Henry Laurens (Department of Physiology): Peptic ulcers (acid ulcers) develop mainly in that portion of the gastrointestinal tract which is exposed to acid gastric juice and unusual mechanical forces. The etiology of peptic ulcer has been extensively studied by consideration of the morbid anatomy and histological details found in human ulcer and through experimental attempts to reduplicate such ulcers in animals. As a result, a host of conceptions as to etiological factors, most of them with sound logical arguments in their support, have been advanced. They may be grouped under the general headings of theories which: (1) postulate an initial devitalizing process with functional injury or necrobiosis of more superficial parts leading to their digestion, and (2) those which attribute them to a primary surface action due to mechanical or chemical insults. The first heading includes the views that it is due to: (a) thrombosis, to spasm of blood vessels with resulting infarction, or to preliminary inflammatory changes, (b) to removal of nerve influences with resulting trophic changes and (c) to toxic or bacterial actions on deep-seated structures. The second heading includes the suggestion that mechanical and chemical agents, such as trauma, natural mechanical forces, and the action of acid and pepsin are initial factors.

A reasonable degree of success in the production of experimental ulcers has been claimed for each of a variety of procedures, chiefly vascular, toxic, bacterial and neurological. They have, however, produced variable and frequently contradictory results in the hands of different experimenters, and it is generally agreed that characteristic chronic indurated ulcers are not easily produced. The trend of recent opinion favors the conclusion that two sets of factors are involved, namely, chemical and mechanical action, and a constitutional factor, coefficient or predisposition.

The chemical and mechanical factors seem to consist chiefly in increased acidity of the pyloro-duodenal canal, caused by the elimination of the neutralizing factors in the duodenum. Of these, the mucosa and its secretion are the most important, the flow of bile and pancreatic juice occupying second and third places respectively. This chemical process is aided by the mechanical rubbing of hard indigestible particles and the persistent direction of a forcible stream of chyme against a circumscribed area of the duodenum. The vigor of gastric contraction, the size of the pyloric opening, and the alignment of a definite region of the duodenum where ulcer develops preferentially, are among the important mechanical factors in the production of duodenal ulcer.

Various procedures have been carried out for preventing natural neutralization of acid chyme in the duodenum. Some dogs are apparently immune and do not develop ulcers. A good deal of clinical experience indicates that constitutional tendencies play a considerable role in paving the way for action of irritants in the pyloro-duodenal canal. From this evidence, we are justified in speaking of peptic ulcer types which include high strung, nervous individuals manifesting symptoms indicative of mild sympathetic overstimulation. A genetic background may exist. Starting with the evidence of a parasympathetic center in the diencephalon and the relay of impulses via medullary centers to the stomach, Cushing supports the concept that lesions from the hypothalamus are prone to cause gastric erosions and ulcers. This accounts for their association with brain injuries and operations and for the fact that high-strung, emotional individuals, and those subject to unusual responsibilities, worries or anxiety are most apt to develop ulcers. The ultimate manner in which such influences act is generally attributed to modification in the resistance of the stomach mucosa against autodigestion. The age-long question as to why the stomach does not digest itself has never been satisfactorily answered. The best explanation is that specific antiferments exist.

Beattie and Sheehan have also demonstrated that faradic stimulation of the tuber region in the fasting cat, under chloralose anesthesia, results in a rise of intragrastric pressure, with a subsequent increase in peristaltic movements of the stomach and that section of both vagi abolished the effect. Kabat et al, however, have shown that electrical stimulation of the lateral hypothalamic area in the unanesthetized cat causes cessation of peristalsis and loss of tone of the stomach and small intestine. Watts points out that removal of cortical influence by extirpation of both premotor areas results in increased motility of the gastrointestinal tract. Faradic stimulation of the premotor area and certain adjoining parts of the cerebral cortex initiates vigorous movements of all parts, indicating that cortical representation for the gastrointestinal tract is inhibitory.

Necheles et al have suggested that acetylcholine may be an important factor in the genesis of ulcer, in such areas in which end arteries are found, as in the distal part of the lesser curvature and in the duodenal cap.

The chief symptoms of peptic ulcer in which structural changes (such as hour-glass stomach, pyloric obstruction) do not significantly interfere with gastric performance are (a) those referable to hyperacidity of chyme and (b) those due to pylorospasm.

The pain of gastric ulcer is somewhat varied. Three types have been described, viz., (1) pain immediately after eating, (2) delayed pain (three to four hours after eating) and (3) nocturnal pains. The cause of the pain has been extensively discussed with the result that gastric and perigastric inflammation, distention, augmented tonus, pylorospasm, acid irritation, edema, and perineural infiltrations have all been suggested as causes. Most investigators agree that the pain is generally related to the acidity, and that a hypersensitivity of nerve terminals to normal acid, presumably in the ulcer region, is the chief factor concerned.

Pathology of Peptic Ulcer—Dr. W. H. Harris (Department of Pathology): The pathology of the peptic ulcer in contrast to other ulcerative lesions of the enteric tract, such as the ulcers of typhoid, bacillary dysentery, tuberculosis and ulcerative colitis, is unusual to the pathologist in that we have but little if any acquaintance with the pre-ulcerative or pathological changes which give rise to the actual ulceration. Microspically the observations of Askanazy are perhaps most replete. He points out four layers usually capable of demonstration: exudation (fibrinous), necrosis, granulation and cicatrization. While but little adjacent relation may be present polyps, and fibrin, catarrhal exudate and not infrequently hemorrhage may be seen on the ulcer surface extending for a slight distance into the tissues. Eosinophiles, lymphoid and plasma cells may predominate. Lesions of the blood vessels and nerves may be seen. Acute peri-arteritis, arteritis and endarteritis are common, also thrombosis, for which organization and even canalization may occur. While arteriosclerosis may at times occur in the young (Ophuls), on the other hand, in patients fifty and sixty years of age, often no sclerosis may be associated. The nerves are interrupted with the gastric wall destruction and acute or chronic neuritis or perineuritis may occur. Small neuromas resembling amputation neuromas may at times be observed. The epithelium may proliferate to form overhanging ledges or may grow downward along the surface. These must not be mistaken for tumor growth. A thin-walled base may lead to diverticula. Regeneration and complete healing may occur. Scar tissue and contractures may be extentisve; hourglass stomach or pyloric stenosis may result. Complications: Hemorrhage is common and of variable extent. Perforation occurs in 20 per cent and cancer, according to Wilson and McCarty, 71 per cent; Ewing 5 per cent; MacCallum 5 per cent and Karsner 10 per cent.

It is to be stressed that such descriptions apply to the pathology of the walls and contiguous structure of the ulcer and not to pathological changes which precede and explain ulcer formation, that is the pathogenesis.

There seems in my mind but little doubt that because of the absence of a definite sequence of "stage pathology" the mystery of the subject of pathogenesis of peptic ulcer is as yet so involved in such intricate and diverse explanations. Virchow's embolic theory, Rokitansky's nervous mechanism theory emphasized by Cushing's parasympathetic tuber nuclei observations and Watts and Fulton's experimental tuber nuclei lesions in monkeys with resultant gastric and duodenal ulcerations are frequently discussed. Linked with the parasympathetic disturbance are added certain of the endocrine "power-houses". The "elective affinity" of nonhemolytic streptococcus as observed by E. C. Rosenow, the diphtheria toxin experiments of Rosenow and Anderson, the gastrotoxic serum (really gastro-mucosa-lytic) experiments of Bolton later confirmed by Karsner, are another group. The various irritants, mechanical, physical and chemical, extending from the rough fodder ingested too early by nursing calves, to the hot food tasting of the cook are advanced. All of these and more form an array of etiologic factors only exceeded, I might conjecture, by those of pellagra. (Lantern slides shown).

The Value of Roentgen Ray in Peptic Ulcer—Dr. J. N. Ané (Department of Radiology): The value of roentgen ray in the diagnosis of gastric and duodenal ulcers is well known. In a series of 500 cases Carman demonstrated that he was able to make accurate diagnoses in about 98 per cent. We depend for diagnosis upon the additions or subtractions of normal contour of the stomach and signs which depend on altered physiological function of the stomach. I have reference to the usual niché formation in penetrating gastric ulcer, to the accessory cavity in perforation, and to the spasm which is not relaxed by atropine, as in duodenal ulcer. There are four types: (1) The mucous slit or small linear area of erosion; (2) the penetrating ulcer; (3) perforating ulcer with formation of accessory cavity, and (4) carcinomatous ulcer. In the case of duodenal ulcer we do not, as a rule, find the niche as frequently as in the stomach. This is believed to be due to the fact that in duodenal ulced the mucosa is smoother and more regular than is the case of the stomach. It is quite possible to have an ulcer of considerable duration with considerable amount of scar tissue and still have a minimum amount of crater formation. In the duodenum we find more marked spasm. Our indirect signs depend upon: (1) the occurrence of spasm; (2) the incisura; (3) an hour-glass stomach, or (4) generalized gastric spasm. There may be increased peristalsis. On the other hand it may be the reverse. Alterations in motility depend upon the location of the ulcer. Ulcers located at the outlet will naturally result in six and frequently twenty-four hour retention of the motor meal. Some may give rise to a patulous pylorus. There are two methods of examination, the first a combination fluoroscopic and plate examination, the second, the method of Cole of New York in which serial films are made. One of the necessary requirements of this method is a minimal number of ten films made in each of a number of positions: prone, supine and erect. (Lantern slides shown).

The Medical Treatment of Gastro-Duodenal Ulcer—Dr. D. C. Browne (Department of Medicine): The diagnosis of the chronic recurrent ulcer having been satisfactorily established, the choice of treatment falls distinctly into one of two fields, either medical or surgical. It may be safely stated that treatment of the uncomplicated case of peptic ulcer is essentially medical and only when complications occur, as you will hear discussed later, is surgical intervention indicated. Certain types are particularly adaptable to conservative treatment. These include ulcers in your younger people and in those whose nutritional status and general health has been well preserved. A less favorable group are those occurring beyond the age of forty-five which give evidence of circulatory changes, and accompanying disease in other organs, or where economic factors may seriously interfere with proper after-care.

With our present conception of the etiology of peptic ulcers, the treatment readily divides itself into two distinct parts, that which has to do with the immediate control and healing of the ulcer, and second, the management of the case following intensive treatment with a view to prevent recurrences.

Much discussion has been indulged in with respect to the relative merits of ambulatory and bed rest care in handling the immediate attack, but careful consideration of statistics will show conclusively that the more desirable regime requires rest in bed and often isolation. It is fundamental to the success of the treatment that the objective to be kept clearly in mind, namely the removal of all sources of irritation from the ulcer-bearing area, bringing about rest and encouraging relaxation of the pylorospasm, in consequence reestablishing normal secretory function and neutralization mechanism of the stomach. Any method which does not adhere to these fundamentals is doomed to failure in some degree. The detailed method which the clinician may select to accomplish these objectives I do not feel is so important providing they are effective. To discuss the relative merits of various dietetic plans and their rationale would require much time and is impractical. In my hands adhering to marked restriction in the early stages of treatment has yielded best results, yet I recognize that more liberal plans such as Lenhartz diet may in selected cases produce equally satisfactory results. Whether we wish to accept the acid theory or not, clinically the control of the acid factor is paramount. Many clinicians do not feel the use of antiacids is necessary and certainly the indiscriminate use of sodium bicarbonate is accompanied by some danger. The proper administration of calcium carbonate or aluminum hydroxide facilitates the treatment and should be used as needed to control the acidity. Pylorospasm is necessary, for on the proper pyloric function depends the most important known factor in the neutralization mechanism of the stomach. Tincture of belladonna probably lends itself as admirably here as any drug. Probably a few remarks should be made concerning the more recent use of histidine and nonspecific proteins, since considerable confusion exists in the literature as to their value. It may be conservatively stated, I believe, that although there is some rationale for the use, they must at present be considered as adjuncts in treatment and not to replace accepted methods.

The immediate attack having been successfully controlled, an equally important phase of treatment presents itself, which includes the removal of the factors which may bring about a recurrence, such as foci of infection especially in the upper respiratory tract and oral cavity, dietetic indiscretion, excessive use of cigarettes and tobacco, undue nervous stress. Failure to "follow through" the ulcer case and educate the patient probably accounts for the great majority of our failures.

The patient must be made to understand that there are certain groups which are more susceptible to peptic ulceration and on proper consideration of this, with the other mentioned factors, depends his future. Until we, as clinicians, accept this attitude we will be faced with the criticisms which have rightfully been directed toward the medical treatment of peptic ulcer.

Dr. I. M. Gage of the Department of Surgery discussed "Complications of Peptic Ulcer."

The Surgical Treatment of Peptic Ulcer—Dr. Alton Ochsner (Department of Surgery): There is relatively little left for anyone to say because as you probably know, we, the Department of Surgery, believe that there is no surgical treatment for peptic ulcer per se. Dr. Browne has emphasized the predisposing constitutional factor and tissue susceptibility. We feel that the surgeon can do nothing to judge tissue susceptibility. Gastroeterostomy is probably the most frequently performed operation on the stomach today and we feel that it is the operation which should be done least frequently. Therefore the surgical treatment consists of the treatment of complications. Dr. Gage has mentioned perforation and hemorrhage. Other complications in which surgical therapy is justified are obstruction and suspected malignant change. The patient who has obstruction, whether gastric or duodenal, necessarily must have some type of operation to relieve the obstruction; otherwise he will die of starvation. In an individual with hyperacidity, the performance of a gastrojejunostomy is not without danger because it permits the acid gastric chyme to be emptied into the jejunum which is less resistant to the digestive action of the gastric juice than the gastric or duodenal mucosa. Either a pyloroplasty, or, if a pyloroplasty is not possibly, and in many instances it is not because of marked scarring, a gastroduodenostomy should be done because the duodenum is accustomed to receiving the gastric chyme. It has been definitely shown that the susceptibility to peptic digestion increases with the aboral distance from the duodenum. The ileum is proportionately more susceptible than the stomach and duodenum. If a patient has a normal acidity a gastroenterostomy should not be done because that same individual has a constitutional predisposition and the chances of his developing a jejunal ulcer are great. What the actual incidence of jejunal ulcer is, one cannot say. In some series the incidence is reported as 2 to 5 per cent. It is possible that in those series in which 20 to 25 per cent are not relieved by the operation that the persistance of symptoms is due to unrecognized jejunal ulcers. Most of you are familiar with the work of Dr. De Bakey who performed an operation first suggested by Dr. von Eiselberg, the so-called pyloric exclusion operation, who found that in patients with pyloric occlusion produced by a cicatrizing ulcer a gastroenterostomy relieved the patient. He suggested that this be mimicked artificially in all ulcer patients and that the pylorus be divided, the stomach and duodenum closed and a gastroenterostomy performed. The operation was very quickly abandoned because the incidence of jejunal ulceration following gastroenterostomy was very high. Undoubtedly the different results obtained following gastroenterostomy in patients with artificially produced pyloric occlusions and those with spontaneous occlusions, are due to the fact that in the former group the gastric acidity is normal or high, whereas in the latter group there is hypoacidity or achlorhydria because of atrophic gastritis which is the result of prolonged gastric retention. Another indication for surgical therapy is suspected malignant change. Every greater curvature ulcer should be suspected as being malignant and these patients should be operated on immediately. In the individual who resists therapy, particularly if that individual is past forty years of age, we believe that the patient should also be operated on, not on account of the ulcer but because of malignant change. It is surprising in how many of our cases of benign calloused ulcers operated on, microscopic evidence of beginning malignant change has been found. We therefore practice preventive medicine by resecting these callous ulcers, particularly if that individual is in the cancer age. Of course the individual who has a chronic calloused gastric ulcer should be given the advantage of an exploration and probable resection because of the great danger of malignant change occurring in this type of ulcer, especially if the ulcer is on the greater curvature. The surgical treatment of peptic ulcer therefore resolves itself into the treatment of the complicating lesion.

## FRENCH HOSPITAL

A regular meeting of the French Hospital Staff was called to order with Dr. J. Palermo presiding in the absence of Dr. Strange.

Dr. Palermo mentioned a case which had been diagnosed and treated as tuberculous laryngitis for several years without improvement. Questioning the diagnosis of tuberculous laryngitis and finding Vincent's spirochetal organisms in a direct smear, he has been treating the case as one of Vincent's infection, by topical application. The case has improved remarkably. No biopsy has been taken. Dr. Ader discussed the case.

Dr. H. B. Alsobrook presented a paper on "The Value and Technic of Tubal Insufflation, or Rubin Test." He opened his talk with the indications for the test as follows:

1. Primary sterility, where contributing causes have been eliminated and some operative procedure is contemplated.
2. Primary sterility in which the patient is known to have passed through a gonorrheal pelvic

infection soon after marriage and is at the time of the inquiry free of pelvic symptoms.

3. Sterility following a pelvic exudate or abscess complicating a puerperium or abortion.
4. Primary sterility caused by appendiceal infection.
5. One child sterility.
6. After one whole tube and part of another have been removed for hydrosalpinx or pyosalpinx.
7. After unilateral ectopic pregnancy to determine the patency of the residual tube.
8. After salpingostomy to determine the success of the operation which was calculated to effect an opening of occluded tubes.
9. After sterilization by tube ligation.
10. After multiple myomectomy in nullipara to make certain that at least the uterine ostium of the tube has been left intact.
11. Sterility of long standing where pelvic masses are palpable and clinically diagnosticated as fibroids or "chronic disease of the adnexa".
12. As a therapeutic measure to eliminate the tubal factor in sterility.
13. Roentgen ray of pelvic organs.
14. Means of producing pneumoperitoneum.

The paper stated the following contra-indication:

1. Menstruation.
2. Uterine bleeding.
3. Pelvic inflammatory diseases.
   (a) Acute.
   (b) Subacute.
4. Heart diseases and pulmonary diseases.
5. Curettage and uterine instrumentation.
6. Pregnancies.
   (a) Uterine.
   (b) Extra-uterine.

The technic includes air, oxygen, carbondioxide, iodized oils and is an office procedure. The patency of the tubes is determined by:

1. Shoulder or interscapular pain by the patient.
2. Sub-diaphragmatic pain.
   (a) Auscultation with stethoscope over the adnexal region for the outflow of air.
   (b) Fluoroscope.
   (c) Roentgen ray.

The following conditions may be listed as limitations of the test:

1. Normal patency.
2. Complete obstruction.
3. Partial obstruction without tubal damage.
4. Partial obstruction with tubal damage.
5. Spasm.

The danger is rupture of the adnexae. This is somewhat eliminated if the pressure of the inflow of air is not above 150 c. mm. of mercury.

Dr. Alsobrook's paper was followed by a practical demonstration of the procedure of the test. A simple device was made whereby the oxygen tank is connected to the blood pressure cuff and distended with oxygen until the pressure in the bag reaches a height of 150 cubic mm. of mercury in the sphygmomanometer. The oxygen in the bag is then forced through a cannular into the uterine cavity and salpinges.

Dr. Zander congratulated Dr. Alsobrook on the simple apparatus which he has devised, and stated that in using the Rubin test he has found that 10 c.c. of iodized oil gives the same results as 20 c.c., but without the discomfort caused by the greater amount.

Dr. Gordon asked how long iodized solution may remain in the pelvis. Dr. Alsobrook, in answer to Dr. Gordon's question stated that Rubin lipiodol in a pelvis two years after it had been injected. Dr. Gordon added that on a cystoscopic examination lipiodal globules had been found in the pelvis three years after injection. Dr. Palermo on behalf of the staff thanked Dr. Alsobrook for a very interesting and beneficial paper and discussion.

The election of officers for the coming year was then opened. The following officers were elected:

Dr. R. L. Gordon, Chairman of Staff.
Dr. J. B. Gooch, Vice-Chairman.
Dr. A. J. Rando, Secretary and Treasurer.

The new officers were then installed into office and the meeting adjourned.

E. A. Baitchman, Ass't. to Sec.

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## MERCY HOSPITAL

The regular monthly meeting of the Mercy Hospital Staff was called to order on Wednesday, December 2, 1936, by Dr. Geo. Hauser, Chairman. This was a joint meeting with the New Orleans Gynecological and Obstetrical Society. Dr. Hauser gave the chair to Dr. Philip J. Carter, President of the New Orleans Gynecological and Obstetrical Society.

There was an interesting scientific program. Dr. George Mayer presented "Simplified Technic for Vaginal Hysterectomy" (moving picture). His paper was discussed by Dr. Carter. Dr. Curtis Tyrone presented "Lacerations of Rectal-Vaginal Septum: Treatment and End Results." Drs. Dicks, Hanckes and Carter discussed this paper. Dr. Charles Odom then presented "Epidural Anesthesia and Its Relation to Obstetrics." Dr. Carter discussed this paper.

This meeting was exceptionally well attended and the Mercy Hospital Staff wishes to thank the New Orleans Gynecological and Obstetrical Society for their excellent presentations.

Lloyd Hanckes, M. D., Sec.

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## HOTEL DIEU

The regular monthly meeting of the Staff of Hotel Dieu was held on Monday, November 16, 1936, at 8:00 p. m. in the Nurses' Lecture Room of Hotel Dieu. The meeting was called to order by the President, Dr. E. H. Walet and with the Secretary, Dr. J. A. LaNasa, at the desk.

The Scientific Program consisted of:

"The Clinical Application of the Ascheim-Zondek and Friedman Tests", Dr. M. L. Stadiem. Discussed by Drs. Couret and Walet.

"Management of Right Occipito-Posterior Position", Dr. C. J. Wheeler. Discussed by Drs. Gorman, Salatich and Stadiem.

"The Reaction from Anti-Syphilitic Therapy", Dr. J. K. Howles. Discussed by Drs. Mouledous, Gordon and Danna .

### SCHUMPERT SANITARIUM

The Schumpert Staff meeting was called to order on November 23, 1936, at 8:00 p. m. by Dr. George Garrett, after dinner in the dining hall. Nineteen staff members were present.

The minutes of the last meeting were read and adopted.

The application of Dr. R. B. DeLee for membership on the staff was taken up under unfinished business. In the absence of the membership chairman, Dr. Norfleet made a motion that Dr. DeLee's application be accepted subject to approval of the membership committee. This was duly seconded and passed.

Dr. George Garrett announced that the sanitarium had secured, for use of the staff, new items of equipment which include short wave diathermy, infra-red lamp, a new obstetric delivery table, operating room light and emergency light, and a completely equipped newborn nursery.

The secretary read a letter from Dr. N. J. Bender, applying for staff membership. This letter was referred to the membership committee.

The scientific program was as follows:

Dr. George Wolfe presented and demonstrated a case of Schuller-Christian's disease, or lipoid histiocytosis, in a seven year old girl. The initial symptoms included polydipsia and polyuria, to be followed about one year ago by prominence of the right eye and dizziness. These symptoms continued until recent admission to the Shreveport Charity Hospital. Roentgen ray examination then revealed areas of bone defect over the skull, completing the classical triad of diabetes insipidus, exophthalmos and defects of the skull bones. Dr. Wolfe pointed out that the increasing number of these cases being reported, 24 within the past 18 months, indicates that the condition occurs more frequently than formerly thought.

Treatment of this child has consisted of roentgen ray therapy of the skull and administration of 0.5 c.c. pitressin twice daily. The polyuria has been alleviated by pitressin administration, the output dropping from three or four liters to one-half liter per day.

The case presentation was discussed by Drs. Gowen and Lucas.

Dr. Chas. Gowen discussed the results of phrenic nerve crush in a case of left apical tuberculosis with cavitation, explaining the modus operandi of this procedure, which in this instance was followed by rapid clinical improvement. The case was discussed by Drs. Norfleet, Walke and Wolfe.

The deaths for the month were discussed.

New business was confined to election of officers. Immediately preceding the election, Dr. George Garrett thanked the staff members for their cooperation during the past year, wishing for the incoming officers this same cooperation.

The following officers were nominated and unanimously elected; for president, Dr. T. J. Fleming; vice-president, Dr. Harold Quinn; for secretary-treasurer, Dr. W. L. Atkins.

Dr. Fleming expressed his appreciation for his election and asked for continued cooperation in building up interesting programs and interesting more doctors in attendance.

C. H. Webb, M. D., Sec.-Treas.

### NORTH LOUISIANA SANITARIUM

The meeting was called to order on November 24, 1936, by the President with 23 members present. After disposal of routine business, attention was turned to the scientific program.

Dr. Cassity reported a case of a brain injury. The patient received a blow over the right parietal region with a beer bottle and soon developed symptoms of injury to the motor area of the brain. Roentgen ray pictures were of no help in diagnosis, showing merely a fracture and not indicating an appreciable depresson of the fragments. At operation it was found that there was marked depression of the fracture and destruction of the brain tissue immediately beneath the fracture. The fragments were replaced and the patient made an uneventful postoperative recovery. The case was discussed by Drs. Rigby and Stewart.

Dr. Lucas presented a report of an infant whose symptoms were suggestive of congenital heart disease. At autopsy the heart was found to be slightly enlarged and containing a patent foramen ovale. As a complete surprise the examination of the stomach showed a definite hypertrophy of the pyloric ring and it was Dr. Lucas' opinion that in a short while the patient would have developed the symptom complex of hypertrophic pyloric stenosis. The case was discussed by Drs. Wolfe and Hargrove.

Harry M. Trifon, M. D., Sec.

### SHREVEPORT CHARITY HOSPITAL

A splendid dinner was enjoyed by a great many members of the Staff of the Hospital on November 18, 1936, thirteen of whom adjourned to the assembly room for the scientific program. Dr.

Gowen, the president, called the meeting to order, with Dr. Blandino in the secretary's chair, the regular secretary being out of the city. There being no new or old business, the scientific program was opened, after Dr. Sanderson spoke on the necessity of every staff member's cooperation in reducing the hospital expenses. He reminded the staff that the hospital is considerably behind in its budget and pointed out several ways in which economics could be enforced.

Dr. Weber presented an interesting case of pyelitis in a negro male, who also was afflicted with a polyglandular disorder which manifested itself by hypoplasia of the genitalia and the presence of female secondary sex characteristics.

The second case, presented by Dr. Boggs, was that of a white male, who, on a previous admission, had been considered as a case of peptic ulcer although roentgen ray studies did not corroborate such a diagnosis. His symptoms improved on the Sippy diet and he was discharged. The patient was readmitted on November 11, 1936, in a moderate degree of shock and in the view of a history of a possible peptic ulcer in the past, a tentative diagnosis of ruptured gastric ulcer was made. Roentgen ray of the abdomen revealed no free air, but did show a dense shadow at the base of the right lung. Subsequent roentgen ray films revealed that this density spread throughout the right chest and attempts at aspiration were negative for fluid. Dr. Gowen considered the possibility of a ruptured subphrenic abscess or encapsulated fluid. He gave a few pointers in connection with thoracentesis and made a few remarks regarding roentgen ray technic when fluid is suspected. The case was discussed further by Drs. Scott, Gray, Craig and Sanderson. No definite diagnosis could as yet be made.

S. G. Wolfe, M. D., Sec.

## THE SHREVEPORT EYE, EAR, NOSE AND THROAT SOCIETY

The Shreveport Eye, Ear, Nose and Throat Society met in regular session at the Charity Hospital, the evening of Monday, December 7, 1936, at 7:30 o'clock. The president, Dr. L. W. Gorton, presided. The following members were present: Dr. A. H. Mann of Texarkana, Arkansas; Captains Burns and Corliss of Barksdale Field; Drs. V. R. Hurst, Earl Greene, and E. E. Willison of Longview, Texas; and Drs. L. W. Gorton, T. D. Boaz, J. L. Scales, W. L. Atkins, I. Henry Smith, John T. Grebbin, and J. A. Wilkinson, of Shreveport.

Captain Burns presented a patient who had received a lacerating wound of the cornea, as a result of an automobile accident, in which the eye was injured by the broken windshield. He covered the wound with a conjunctival flap which resulted in perfect union and a useful eye.

Captain Corliss presented a case of chronic uveitis of undetermined origin. Patient is slowly recovering under large doses of iodides.

Dr. Scales presented a patient who had received an acid burn of the cornea and conjunctiva, which resulted in considerable inflammation and hypopyon. He incised the cornea from limbus to limbus in the lower portion evacuating considerable pus. Following this the eye is recovering in a satisfactory manner.

Dr. Scales also showed an old colored man who was blind in the right eye following an unsuccessful cataract operation and blind in the left eye due to an unoperated cataract with angular iris adhesions. He had performed an iridectomy several weeks ago and plans to operate again and, if possible, free the iris from the lens and remove the cataract in its capsule.

Dr. Atkins presented a white man with bilateral uveitis of several weeks standing. In the absence of any known focus of infection, he had used iodides and several kinds of foreign protein. One eye was practically well and the other slowly improving.

Dr. Atkins also showed a colored man who had a discharging fistula and osteomyelitis in the wall of the frontal sinus. He plans to do a radical frontal operation and remove all diseased bone, establishing a free drainage into the nose.

Dr. Hurst showed a colored woman who became blind in the left eye rather suddenly. The eye appears normal in every respect. He was not certain of the cause or the prognosis, but suggested that it might be retrobulbar neuritis and possible multiple sclerosis.

J. A. Wilkinson, M. D., Sec.

# TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

## CALENDAR

JANUARY 4. Board of Directors, Orleans Parish Medical Society, 8 p. m.

JANUARY 4. Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.

JANUARY 4. Pathologic Conference, Hotel Dieu, 8:15 p. m.

JANUARY 6. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

JANUARY 6. Mercy Hospital Staff, 8 p. m.

JANUARY 8. French Hospital Staff, 8 p. m.

JANUARY 11. ORLEANS PARISH MEDICAL SOCIETY, 8 p. m. Installation of Officers, 1937.

JANUARY 12. Charity Hospital Dental Staff, 8 p. m.

JANUARY 13. Touro Infirmary Staff, 8 p. m.

JANUARY 15. I. C. R. R. Hospital Staff, 12 noon.

JANUARY 18. Hotel Dieu Staff, 8 p. m.

JANUARY 18. Joint meeting of the Orleans Parish Medical Society and the New Orleans Gynecological and Obstetrical Society, 8 p. m.

JANUARY 19. Charity Hospital Medical Staff, 8 p. m.

JANUARY 20. Clinicopathologic Conference Touro Infirmary, 11:15 a. m. to 12:15 p. m.

JANUARY 20. Charity Hospital Surgical Staff, 8 p. m.

JANUARY 20. 1st and 2nd District Dental Society, 8. p. m.

JANUARY 21. Eye, Ear, Nose and Throat Club, 8 p. m.

JANUARY 25. ORLEANS PARISH MEDICAL SOCIETY, 8 p. m.

JANUARY 26. Baptist Hospital, 8 p. m.

JANUARY 27. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

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During the month of December the Society held one meeting which was the eleventh Stanford E. Chaille Memorial Oration. This meeting was exceptionally well attended, the following program being presented:

The Etiology and Treatment of Peptic Ulcer.
By: ............Dr. Donald C. Balfour, Mayo Clinic, Rochester, Minnesota.

The Administration of Fluid in the Surgical Patient.
By: ........Dr. Frederick A. Coller, Professor of Surgery, University of Michigan.

Acute Abdominal Emergencies.
By: Dr. Arthur W. Allen, Clinical Professor of Surgery, Harvard University.

This meeting served as the election meeting when the following candidates were announced to the Society as having been elected at the annual election held Saturday, December 12, 1936:

President—Dr. James T. Nix.
First Vice-President—Dr. Shirley C. Lyons.
Second Vice-President—Dr. George H. Hauser.
Third Vice-President—Dr. Edgar Burns.
Secretary—Dr. Gilbert C. Anderson.
Treasurer—Dr. Edwin H. Lawson.
Librarian—Dr. Alton Ochsner.

### ADDITIONAL MEMBERS BOARD OF DIRECTORS

Dr. Donovan C. Browne.
Dr. Frederick L. Fenno.
Dr. Francis E. LeJeune.

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Dr. Isidore Cohn was a guest speaker before the Southwest Medical Association at its meeting held in El Paso, Texas on November 19 and 20, 1936.

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Dr. John H. Musser has been appointed a member of the Bi-Centennial Committee of the University of Pennsylvania, and will serve on a committee which is to plan the celebration of the University's 200th aniversary in 1940.

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The meeting of the Southern Medical Association, which was held recently in Baltimore, was one of the most successful meetings which has ever been held. The registration exceeded 3500, and at the close of the meeting New Orleans was selected as the next meeting place. The dates will be November 29 through December 3, 1937. Dr. Alton Ochsner, who has served for two years as secretary of the Section on Surgery, was elected Chairman of this section at the Baltimore meeting. Other members of the Society who attended this meeting are: Drs. Ruth G. Aleman, C. C. Bass, W. R. Buffington, W. B. Clark, Chas. F. Craig, Jos. S. D'Antoni, L. R. DeBuys, T. J. Dimitry, E. C. Faust, John T. Halsey, Geo. H. Hauser, E. Harold Hinman, James K. Howles, J. Raymond Hume, Wilkes A. Knolle, Edwin H. Lawson, A. L. Levin, M. J. Magruder, Alton Ochsner, Walter J. Otis, Neal Owens, Rawley M. Penick, Jr., John T. Sanders, Suzanne Schaefer, H. Theodore Simon, H. R. Unsworth, M. T. Van Studdiford, J. Ross Veal, E. von Haam, Wm. A. Wagner, and Robert M. Willoughby.

Medical Defense begins only after your State dues are received. Please mail check for $18.00 for 1937 dues in Parish and State Societies.

### TREASURER'S REPORT

| | |
|---|---|
| ACTUAL BOOK BALANCE: 10/31/36: | $1,442.17 |
| November credits: | $ 772.96 |
| Amount credited in error: | $ 110.95 |
| TOTAL CREDITS: | $2,326.08 |
| November expenditures: | $ 556.38 |
| ACTUAL BOOK BALANCE: 11/30/36 | $1,769.70 |

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### LIBRARIAN'S REPORT

During the month of November, 125 volumes were added to the Library. Of these 84 were received by gift, 20 by binding, 5 by purchase and 16 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is given below.

The Library has loaned to doctors 755 books and journals during November, or more than 1½ to each active member of the Society. In addition 896 items have been loaned to students making a total of 1,651. These figures do not include the great use of books and journals within the Reading Rooms.

On request of physicians, members of the staff have collected material on the following subjects during the month:

Health and economic depression.
Cryptorchidism
Vomiting in infancy.
Results of sympathectomy.
Chemistry of colloids.
Light therapy in tuberculosis.
Carcinoma of lingual thyroid.
Angiospasm.
Pulmonary embolism due to dilatation and curettage.
Organized medicine.
Treatment of obesity.
Atropine in obstetrics.
Fracture of sternum.
History of treatment of tuberculosis.
Carcinoma of small intestine and appendix.
Tubo-ovarian abscess.

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NEW BOOKS—November

Cabot, Hugh—Modern Urology. 2 v. 1936.

Holmes, G. W. and Ruggles, H. E.—Roentgen Interpretation. 1936.

Washington Institute of Medicine. v. 8. 1936.

Macleod, J. J. R.—Fundamentals of Human Physiology. 1936.

Spivack, J. L.—Surgical Technique of Abdominal Operations. 1936.

Sadler, W. S.—Theory and Practice of Psychiatry. 1936.

Luten, Drew—Clinical Use of Digitalis. 1936.

Wesson, M. B.—Urologic Roentgenology. 1936.

Lawrence, R. D.—Diabetic Life. 1936.

Houston, W. R.—Art of Treatment. 1936.

Bailey, Hamilton—Demonstration of Physical Signs in Clinical Surgery. 1935.

Kerley, Peter—Recent Advances in Radiology. 1936.

Galdston, Iago—Medicine and Mankind. 1936.

Sachs, Bernard—Keeping your Child Normal. 1936.

American Can Company—Facts About Commercially Canned Foods. 1936.

Tenenbaum, Joseph—The Riddle of Woman. 1936.

Gilbert C. Anderson, M. D., Secretary.

# LOUISIANA STATE MEDICAL SOCIETY NEWS

## PROGRAM

## THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

March 8-11, 1937
Hyder F. Brewster, M. D., General Chairman.

### Monday, March 8

All Sessions of the Assembly will be held at the Roosevelt Hotel

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|---|---|
| 8:00 to 10:00 A. M. | REGISTRATION—VIEW EXHIBITS. |

### MORNING SESSION

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|---|---|
| 10:00 to 11:00 A. M. | Opening Exercises. T. B. Sellers, M. D., Presiding. Invocation—Address of Welcome—Recognition of City, State and Medical Officials. |
| 11:00 to 11:55 A. M. | John A. Kolmer, M. D., Pathologist. Immunity and Vaccination against Infantile Paralysis. |

### LUNCHEONS AND ROUND TABLE DISCUSSIONS

| | |
|---|---|
| Room E.<br>12:00 to 1:40 P. M. | *Gynecology*: George Gray Ward, M. D. Staff Conference and Surgical Audit (Lantern Slides). |
| Dome Room<br>12:00 to 1:40 P. M. | *Medicine*: George M. Piersol, M. D. The Value of Laboratory Studies in the Management of Nephritis. |
| Room C.<br>12:00 to 1:40 P. M. | *Neurology*: Lewis J. Pollock, M. D. The Physiology of Referred Visceral Pain. |
| Room B.<br>12:00 to 1:40 P. M. | *Obstetrics*: H. J. Stander, M. D. Postpartum Hemorrhage. |

### AFTERNOON SESSION

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|---|---|
| 2:00 to 2:45 P. M. | Lewis J. Pollock, M. D., Neurologist. Diseases of the Nervous System Producing Dysfunction of Other Organs and Dysfunction of Other Organs Producing or Simulating Diseases of the Nervous System. |
| 2:50 to 3:30 P. M. | George Gray Ward, M. D., Gynecologist. Vaginal Plastics (Lantern Slides). |
| Intermission.<br>3:30 to 3:50 P. M. | View Technical and Scientific Exhibits. |
| 3:50 to 4:35 P. M. | Hugh Trout, M. D., Surgeon. Cancer of the Breast. |
| 4:40 to 5:10 P. M. | H. J. Stander, M. D., Obstetrician. Cardiac Disease and Pregnancy. |
| 5:10 to 8:00 P. M. | Nothing Scheduled—Use this time as you see fit. |

### EVENING SESSION

In conjunction with Orleans Parish Medical Society

| | |
|---|---|
| 8:00 to 8:45 P. M. | George M. Piersol, M. D., Medicine. Syphilis of the Cardio-Vascular System. |
| 8:50 to 9:20 P. M. | Clifford B. Walker, M. D., Ophthalmologist. Retinal Detachment and its Relation to General Medicine and Surgery. |
| 9:25 to 10:15 P. M. | Robert B. Osgood, M. D., Orthopedist. The Anatomical and Physiological Causes of Low Back Pain. Diagnosis and Treatment. |

## TUESDAY, MARCH 9

All Sessions of the Assembly will be held at the Roosevelt Hotel

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|---|---|
| 8:00 to 9:00 A. M. | REGISTRATION—VIEW EXHIBITS. |

## MORNING SESSION

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|---|---|
| 9:00 to 9:45 A. M. | Meredith Campbell, M. D., Urologist. Urinary Infections in Children. |
| 9:50 to 10:20 A. M. | George Gray Ward, M. D., Gynecologist. Complications of Cancer Therapy in Gynecology, (Lantern Slides). |
| Intermission.<br>10:20 to 10:35 A. M. | View Technical and Scientific Exhibits. |
| 10:35 to 11:20 A. M. | George M. Piersol, M. D., Medicine. Acute Hepato-Cellular Disease. |
| 11:25 to 12:10 P. M. | Lewis J. Pollock, M. D., Neurologist. The Relation of Trauma to Diseases of the Nervous System. |

## LUNCHEONS AND ROUND TABLE DISCUSSIONS

| | |
|---|---|
| Room C.<br>12:15 to 1:40 P. M. | *Ophthalmology*: Clifford B. Walker, M. D. Diathermy and Galvanism in the Treatment of Retinal Detachment. |
| Room B.<br>12:15 to 1:40 P. M. | *Orthopedics*: Robert B. Osgood, M. D. The Relation of Faulty Body Mechanics to Fatigue and Joint Symptoms. |
| Room G.<br>12:15 to 1:40 P. M. | *Pathology*: John A. Kolmer, M. D. Etiology, Diagnosis and Treatment of Septicemia. |
| Dome room.<br>12:15 to 1:40 P. M. | *Surgery*: Hugh Trout, M. D. Peptic Ulcer. |
| Room E.<br>12:15 to 1:40 P. M. | *Urology*: Meredith Campbell, M. D. Urologic Problems in Children. |

## AFTERNOON SESSION

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|---|---|
| 2:00 to 2:30 P. M. | H. J. Stander, M. D., Obstetrician. Classification of the Toxemias of Pregnancy—Low Reserve Kidney. |
| 2:35 to 3:15 P. M. | Robert B. Osgood, M. D., Orthopedist. The Role of the Orthopedic Surgeon in the Treatment of Chronic Arthritis. |
| 3:15 to 3:40 P. M. | View Technical and Scientific Exhibits. |
| 3:40 to 4:20 P. M. | Meredith Campbell, M. D., Urologist. Enuresis (Lantern Slides). |
| 4:25 to 5:00 P. M. | Hugh Trout, M. D., Surgeon. Aids in the Diagnosis of and the Management in the Treatment of Acute Intestinal Obstruction. |
| 5:00 to 8:00 P. M. | Nothing Scheduled—Use this time as you see fit. |

## EVENING SESSION

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|---|---|
| 8:00 to 8:50 P. M. | John A. Kolmer, M. D., Pathologist. Nature and Therapeutic Applications of Bacteriophage. |
| 8:55 to 9:35 P. M. | Clifford B. Walker, M. D., Ophthalmologist. Neurological Ophthalmology (Traumatic Bitemporal Hemanopsia). |

## WEDNESDAY, MARCH 10

All Sessions of the Assembly will be held at the Roosevelt Hotel

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|---|---|
| 8:00 to 9:00 A. M. | REGISTRATION—VIEW EXHIBITS. |

## MORNING SESSION

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|---|---|
| 9:00 to 9:45 A. M. | Ralph M. Waters, M. D., Anesthetist. The Development of a Science of Anesthesia. |
| 9:50 to 10:20 A. M. | A. Benson Cannon, M. D., Dermatologist. Present-day Trends in the Diagnosis and Treatment of Syphilis. |
| Intermission<br>10:20 to 10:50 A. M. | View Technical and Scientific Exhibits. |
| 10:50 to 11:50 A. M. | Albert C. Furstenberg, M. D., Ear, Nose and Throat. Acute Supperations of the Mouth, Pharynx and Cervical Regions. (Lantern Slides). |

## LUNCHEONS AND ROUND TABLE DISCUSSIONS

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|---|---|
| Room E.<br>12:00 to 1:40 P. M. | *Anesthesia*: Ralph M. Waters, M. D. The Absorption of Carbon Dioxide from Anesthetic Atmospheres. |
| Room C.<br>12:00 to 1:40 P. M. | *Dermatology*: A. Benson Cannon, M. D. The Treatment of Vascular Anomalies of the Skin. |
| Dome Room.<br>12:00 to 1:40 P. M. | *Ear, Nose and Throat*: Albert C. Furstenberg, M. D. The Medical Treatment of Meniere's Symptom Complex. |
| Room B.<br>12:00 to 1:40 P. M. | *Gastro-Enterology*: Anthony Bassler, M. D. The Dysenteries—Amebic and Bacillary. |

## AFTERNOON SESSION

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|---|---|
| 2:00 to 2:50 P. M. | Anthony Bassler, M. D., Gastro-Enterologist. Hepatic Insufficiencies in Relation to Bodily Disorders. |
| 2:55 to 3:25 P. M. | Russell Cecil, M. D., Medicine. Serum Therapy of Lobar Pneumonia, with Special Reference to Some of the Newer Types. |
| Intermission.<br>3:25 to 3:45 P. M. | View Technical and Scientific Exhibits. |
| 3:45 to 4:30 P. M. | Rolla Eugene Dyer, M. D., Preventive Medicine. Typhus. |
| 4:35 to 5:05 P. M. | Wm. W. Babcock, M. D., Surgeon. Common Errors in Clinical Surgery (Illustrated by Colored and Black and White Lantern Slides.) |
| 5:05 to 8:00 P. M. | Nothing Scheduled—Use this time as you see fit. |

## EVENING SESSION

| | |
|---|---|
| 8:00 to 8:45 P. M. | Julius Hess, M. D., Pediatrician. The Present Status of Serum Therapy. |
| 8:50 to 9:30 P. M. | Eugene P. Pendergrass, Radiologist. The Small Intestine (Lantern Slides). |

## THURSDAY, MARCH 11

All Sessions of the Assembly will be held at the Roosevelt Hotel

| | |
|---|---|
| 8:00 to 9:00 A. M. | REGISTRATION—VIEW EXHIBITS. |

### MORNING SESSION

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|---|---|
| 9:00 to 9:30 A. M. | Anthony Bassler, M. D., Gastro-Enterologist. A Consideration of Diagnostic Criteria of Peptic Ulcer and Its Treatment. |
| 9:35 to 10:25 A. M. | Albert C. Furstenberg, M. D., Ear, Nose and Throat. A Clinical and Pathological Study of Tumors and Cysts of the Head and Neck (Lantern Slides). |
| Intermission.<br>10:25 to 11:00 A. M. | View Technical and Scientific Exhibits. |
| 11:00 to 11:50 A. M. | Rolla Eugene Dyer, M. D., Preventive Medicine. Rocky Mountain Spotted Fever. |

### LUNCHEONS AND ROUND TABLE DISCUSSIONS

| | |
|---|---|
| Tip Top Inn<br>12:00 to 1:40 P. M. | *Medicine*: Russell Cecil, M. D. Methods of Preventing Recurrence of Rheumatic Fever. |
| Room E.<br>12:00 to 1:40 P. M. | *Pediatrics*: Julius Hess, M. D. Problems in the Care of Premature Infants (Two Reel Film). |
| Room C.<br>12:00 to 1:40 P. M. | *Preventive Medicine*: Rolla Eugene Dyer, M. D. Laboratory Differentiation of Typhus and Spotted Fever. Demonstration of Methods, Infected Animals. |
| Room B.<br>12:00 to 1:40 P. M. | *Radiology*: Eugene P. Pendergrass, M. D. The Biliary Tract. |
| Dome Room.<br>12:00 to 1:40 P. M. | *Surgery*: Wm. W. Babcock, M. D. Technical Improvements in Biliary Surgery (Illustrated by Slides). |

### AFTERNOON SESSION

| | |
|---|---|
| 2:00 to 2:30 P. M. | Ralph M. Waters, M. D., Anesthetist. Relations of Carbon Dioxide to Clinical Medicine. |
| 2:35 to 3:05 P. M. | A. Benson Cannon, M. D., Dermatologist. The Diagnosis, Treatment and Prevention of Skin Cancer. |
| Intermission<br>3:05 to 3:55 P. M. | View Technical and Scientific Exhibits. |
| 3:35 to 4:05 P. M. | Eugene P. Pendergrass, M. D., Radiologist. Silicosis. |
| 4:10 to 5:00 P. M. | Julius Hess, M. D., Pediatrician. Special Therapeutic Procedures in Infancy and Childhood. |
| 5:00 to 8:00 P. M. | Nothing Scheduled—Use this time as you see fit. |

### EVENING SESSION

| | |
|---|---|
| 8:00 to 9:00 P. M. | Wm. W. Babcock, Surgeon. Advances in the Operative Treatment in Carcinoma of the Large Bowel (Illustrated in Color Motion Pictures and Lantern Slides). |
| 9:10 to 9:50 P. M. | Russell Cecil, M. D., Medicine. Treatment of Chronic Arthritis, (Lantern Slides). |

## SHREVEPORT MEDICAL SOCIETY

The regular meeting of the Shreveport Medical Society was called to order on December 1, 1936, by the president, with 48 members and 3 guests present. The minutes of the previous meeting were read and adopted. Annual reports were then given by the officers and the various standing and special committees.

Unfinished Business: The committee on the application of Dr. P. R. Googe for membership in the society reported favorably and rules were suspended and Dr. Googe elected to membership by open ballot, the oath being administered by the president.

New Business: Application for membership in the society by Dr. Geza Aczel was received and the society ordered that it take the usual course.

Dr. Lucas introduced a resolution that the practice of certain druggists in counter-prescribing be investigated by the proper committee and recommendations made to the society. This motion was duly seconded and carried.

The following officers were then elected unanimously:

President—Dr. W. B. Heidorn.

1st Vice-President—Dr. R. T. Lucas.

2nd Vice-President—Dr. W. J. Sandidge.

Treasurer—Dr. D. R. McIntyre.

Secretary—Dr. P. D. Abramson.

Historian—Dr. J. M. Bodenheimer.

Delegates—Dr. C. P. Rutledge (3 year term); Dr. J. G. Yearwood (1 year term); Dr. O. C. Rigby, (1 year term); Dr. R. T. Lucas, (1 year term); Dr. J. T. Crebbin, (1 year term).

Representative Charity Medical Unit: Dr. W. M. Scott, (3 year term).

Dr. Barrow introduced a resolution that the society formally extend sympathy to Dr. J. M. Bodenheimer in his illness and that appropriate floral offering be sent. The resolution was duly carried.

Paul D. Abramson, M. D., Sec.

## EAST BATON ROUGE PARISH MEDICAL SOCIETY

At the last meeting of the East Baton Rouge Medical Society, which was a joint meeting with the Staff of Our Lady of the Lake, the following officers were elected for the year 1937:

President—Dr. William K. Irwin, Baton Rouge.

First Vice-Pres.—Dr. Ashto Robins, Baton Rouge.

Second Vice-Pres.—Dr. T. L. Mills, Zachary.

Sec.-Treas.—Dr. J. L. Bevens, Baton Rouge.

Delegates—Drs. W. H. Cook, E. O. Trahan and Jeff McHugh.

Alternates—Drs. W. R. Eidson, Guy Riche and B. E. Nelken.

After the meeting a turkey supper was served in the dining room of the Sanitarium.

## IBERIA PARISH MEDICAL SOCIETY

On December tenth, the Iberia Parish Medical Society was host at dinner to Dr. Edward Lacy King, visiting obstetrician, at the Evangeline Night Club. Dr. King had been conducting the Post-Graduate work in Obstetrics for the Third District.

Sixteen members and guests were present and enjoyed talks by Dr. King and Dr. Charles Horton, President-Elect of the Louisiana State Medical Society. Other speakers were Dr. C. C. DeGravelles, Councilor for the Third District, Dr. Guy Shaw, Third Vice-President of the State Society, and Dr. L. B. Long, Secretary-Treasurer of the Third District Medical Society.

The following officers were elected for 1937.

President—Dr. H. A. King, Jr., New Iberia.

Vice-Pres.—Dr. W. P. Tilly, New Iberia.

Sec.-Treas.—Dr. B. L. Stinson, New Iberia.

Delegate—Dr. H. M. Flory, New Iberia.

Alternate—Dr. E. N. Landry, New Iberia.

H. M. Flory, Secretary-Treasurer.
Webster Parish Medical Society.

## SABINE PARISH MEDICAL SOCIETY

At the last meeting of the Sabine Parish Medical Society held in Converse, Louisiana at the Allen Sanitarium, Dr. H. M. Prothro and Dr. S. F. Fraser presented interesting cases which were discussed by the entire group present. Dr. L. H. Murdock presented a paper on "The Transfusion of Blood".

The following officers were elected for 1937:

President—Dr. W. D. Lester, Many.

Vice-President—Dr. J. W. Craig, Many.

Secretary-Treasurer—Dr. W. G. Allen, Converse.

Delegate—Dr. H. M. Prothro, Converse.

Alternate—Dr. S. F. Fraser, Converse.

Program Committee—Dr. L. H. Murdock, Chairman, Converse; Dr. S. F. Fraser, Converse; Dr. J. K. Phares, Many.

Cancer Committee—Dr. L. H. Murdock, Chairman, Converse; Dr. R. B. Stille, Many; Dr. S. F. Fraser, Converse.

Following the meeting refreshments were served by the nurses and dietitian of the hospital.

The next meeting will be held at the Court House in Many, Louisiana, on Friday, December 18, 1936 at 7:15 p. m.

## EAST AND WEST FELICIANA BI-PARISH MEDICAL SOCIETY

Bi-Parish Medical Society was called to order by Vice-President A. S. Tomb, in the Rist Hotel. After bounteous repast prepared by Mr. and Mrs. August Rist, society passed regular order of business. Reading of minutes of previous medical meetings. Election of officers resulted as follows:

Dr. S. L. Shaw, President.

Dr. W. J. Robards, Vice-President.

Dr. E. M. Toler, Secretary-Treasurer.

Dr. E. H. Pargen, Delegate to the La. Medical Society.

Dr. B. B. Lane, Alternate.

Scientific program: Dr. Robards of East Louisiana State Hospital, presented a paper on roentgen ray plates as an adjunct to early diagnosis of pulmonary tuberculosis. Dr. Robards' paper was freely and favorably discussed by members present. A vote of thanks was extended to Dr. Robards for the presentation of his most excellent paper. All members and guests made favorable comments on the excellent dinner given us by Mr. and Mrs. Rist.

Members and guests present: Dr. and Mrs. Robards, Dr. and Mrs. S. L. Shaw, Dr. and Mrs. W. J. Roberts, Dr. and Mrs. G. L. Odom, Dr. and Mrs. E. H. Pargen, Dr. and Mrs. B. B. Lane, Jr., Dr. and Mrs. C. S. Toler, Dr. and Mrs. E. M. Toler, Dr. N. F. Stafford, Miss Hermine Tate, Miss Isadore Haynes, Dr. A. S. Tombs, Jr.

Society adjourned to meet in East Louisiana State Hospital, Jackson, Louisiana, the first Wednesday in February, 1937.

A. S. Tombs, President Protem.
E. M. Toler, Secretary.

## TRI-PARISH MEDICAL SOCIETY

At the regular meeting of the Tri-Parish Medical Society (East and West Carroll, Madison and Tensas), held at Tallulah, Louisiana on December 1, 1936, the following officers were elected for the year 1937.

President—Dr. J. Preston Davis, Lake Providence.

Vice-Presidents—B. C. Abernathy, Sondheimer; Dr. E. D. Butler, Oak Grove, Dr. E. O. Edgerton, Tallulah; Dr. D. F. Davis, Newellton.

Secretary-Treasurer—Dr. William H. Hamley, Lake Providence.

Delegate—Dr. Joseph Whitaker, St. Joseph.

Alternate—Dr. B. L. Bailey, Epps.

Guest essayist at the meeting was Dr. R. A. Street of Vicksburg, Mississippi, whose subject was "Hyperemesis Gravidarum and Report of Cases Treated with Eschatin."

## CLAIBORNE PARISH MEDICAL SOCIETY

At the Annual Meeting of the Claiborne Parish Medical Society held in Homer on December 1, 1936 the following officers were elected to serve for the years 1937.

President—Dr. C. O. Wolff, Haynesville.

Vice-President—Dr. E. B. Middleton, Homer.

Secretary-Treasurer—Dr. H. R. Marlatt, Homer.

Delegate—Dr. S. A. Tatum, Homer.

Alternate—Dr. H. R. Marlatt, Homer.

H. R. Marlatt, M. D., Sec.

## POINTE COUPEE PARISH MEDICAL SOCIETY

The following officers have been selected for 1937:

President—Dr. F. F. Rougon, New Roads.

Vice-President—Dr. John S. Branch, Lettsworth.

Secretary-Treasurer—Dr. Eugene G. Durel, New Roads.

Delegate—Dr. R. McG. Carruth, New Roads.

Alternate—Dr. M. O. Becnel, New Roads.

## AVOYELLES PARISH MEDICAL SOCIETY

The following officers have been selected for 1937:

President—Dr. Albert M. Abramson, Marksville.

Vice-President—Dr. Adrian B. Cairns, Bunkie.

Secretary-Treasurer—Dr. Kirby A. Roy, Mansura.

## WEBSTER PARISH MEDICAL SOCIETY

The following officers have been selected for 1937:

President—Dr. R. E. Smith, Minden, Louisiana.

Vice-President—Dr. C. M. Baker, Minden, Louisiana.

Secretary-Treasurer—Dr. B. A. Norman, Minden, Louisiana.

Delegate—Dr. Wilkins McDade, Minden, Louisiana.

Alternate—Dr. W. C. Summer, Minden, Louisiana.

## DESOTO PARISH MEDICAL SOCIETY

The following officers have been selected for 1937:

President—Dr. B. P. Smith, Keatchie, Louisiana.

Vice-President—Dr. F. O. Brinkley, Gloster, Louisiana.

Secretary-Treasurer—Dr. W. G. Jones, Mansfield, Louisiana.

Delegate—Dr. R. A. Tharp, Mansfield, Louisiana.

Alternate—Dr. W. B. Hewitt, Mansfield, Louisiana.

## COLLEGE OF SURGEONS

During 1937 the American College of Surgeons is planning a Sectional Meeting to be held in Atlanta, Georgia, on February 3, 4, and 5. Headquarters will be at the Atlanta Biltmore Hotel, and the following states will participate: Georgia, Florida, North Carolina, South Carolina, Tennessee, Alabama, Mississippi, Louisiana.

An active Committee on Local Arrangements has plans in hand for a most interesting meeting. Dr. James L. Campbell is chairman, and Dr. D. Henry Poer is secretary of the Committee on Local Arrangements.

This meeting will be of interest not only to Fellows of the College but to the medical profession at large, and in addition, hospital trustees, superintendents, nurses, and other hospital departmental personnel are invited to attend the hospital conference.

There will be no registration fee.

## AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

The American Association for the Study of Goiter again offers the Van Meter Prize Award of $300.00 and two honorable mentions for the best essays submitted concerning experimental and clinical investigations relative to the thyroid gland. This award will be made at the discretion of the Society at its next annual meeting to be held in Detroit, Michigan, June 14, 15, and 16.

The competing manuscripts, which should not exceed 3000 words in length, must be presented in English and a typewritten double spaced copy sent to the Corresponding Secretary, Dr. W. Blair Mosser, 133 Biddle Street, Kane, Pennsylvania, not later than April 1, 1937. Manuscripts received after this date will be held for competition the following year or returned at the author's request.

## NEWS ITEMS

The Southeastern Branch Society of the American Urological Association met in Charlotte, North Carolina, December 4 and 5, 1936 with Dr. H. W. E. Walther presiding. A series of papers were presented by distinguished urologists from the north, east and south.

Assistant Surgeon John W. Jolley was relieved from duty, U. S. Marine Hospital, St. Louis, Mo., on December 1, 1936 and ordered to the U. S. Quarantine Station, New Orleans (Algiers) La., for duty.

Prof. T. B. Sellers of the faculty of the Graduate School of Medicine of the Tulane University of Louisiana, conducted a course in extension teaching of obstetrics at Jennings, La., during the week of December 7, 1936.

Prof. Walter E. Levy, Chief of the Division of Obstetrics of the Graduate School of Medicine of The Tulane University of Louisiana, conducted a course in extension teaching of obstetrics at Donaldsonville, La., during the week beginning December 14, 1936.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census reports that for the week ending November 14 there were 139 deaths in the city of New Orleans, distributed 67 white and 71 negroes. The death rate for this week was only 15.0. The infant mortality rate was 64. For the succeeding week, ending November 21, the deaths totaled 154 with a rate of 16.7. These deaths were divided 88 white and 66 negro. The infant mortality rate obtained the surprisingly low figure of 35. For the next week, ending November 28, there was some increase in the number of deaths, 163 citizens in the city succumbed from disease or accident this week. Of these 105 were white and 58 were negroes. The death rate for the whole group was 17.7. The infant mortality rate this week had jumped up to 87. There was a big increase in the number of deaths for the week ending December 5, there being 196 deaths of which 114 were in the white population and 82 in the negro. The death rate for this week was 21.3. The infant mortality rate was 52. No figures were published as to the relative rate in the white and negro races for the 4 weeks reported here.

The death rate for the first 49 weeks of the year is 18.2 as contrasted with a rate of 16.2 for the corresponding weeks of 1935. The increase in the death rate this year is not peculiar to New Orleans, it being somewhat higher in most cities reporting to the Bureau of Census.

## INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana has furnished us with the weekly morbidity reports for the State of Louisiana, which contain the following summarized information: For the week ending November 14, the 46th week of the year, the following diseases occurred in double figures: 41 cases of pneumonia, 40 of cancer, 39 of tuberculosis, 34 of malaria, 28 of syphilis, 17 each of scarlet fever and diphtheria, 16 of whooping cough and 14 of septicemia. The following unusual diseases were reported: 2 cases of poliomyelitis, 1 each from E. Carroll and Ouachita Parishes. A case of smallpox was discovered in Caddo Parish. Three patients with undulant fever were found in Ascension, Avoyelles and Jefferson Davis Parishes. For the next week, completed November 21, pulmonary tuberculosis led all reportable diseases with 41 cases followed by 39 cases of pneumonia. Other diseases occurring in double figures that were listed included 37 cases of gonorrhea, 33 of cancer, 30 of syphilis, 27 of diphtheria, 24 of influenza, 18 of malaria, 17 of scarlet fever and 15 of typhoid fever. Of the typhoid fever cases, Vermilion Parish, with 4 reported, had twice as many as any other Parish. Thirteen patients with diphtheria came from Orleans Parish. One case of poliomyelitis originated in Tensas Parish. A case of meningitis was reported from Catahoula Parish and 1 case of undulant fever from Bossier. The pulmonary diseases again led all other reported diseases the next week, which ended November 28. There were 43 cases of pneumonia and 35 cases of pulmonary tuberculosis reported by the Bureau of Epidemiology. Next in frequency occurred the following diseases: 29 cases of cancer, 17 of gonorrhea, 16 of influenza, 15 of syphilis, 14 each of malaria and typhoid fever and 12 of diphtheria. Of the typhoid fever cases, East Carroll Parish reported 4. Five cases of poliomyelitis were listed, 4 from Orleans and one from St. Tammany. Orleans Parish also reported 1 case of cerebrospinal meningitis and 1 case of undulant fever, while from East Baton Rouge Parish, 1 case of typhus fever was reported. The week ending December 5, the most frequent of all reported diseases, syphilis, led the list with 55 cases and was followed closely by pneumonia with 48 reported cases. Then came diphtheria with 30 followed by 27 of cancer, 22 of gonorrhea, 17 of pulmonary tuberculosis and 10 of malaria. Of the more unusual diseases, Union Parish reported 1 case of smallpox. From Orleans Parish there was reported 2 cases of paratyphoid, 2 of tularemia and 15 of diphtheria. Three cases of poliomyelitis were listed; 2 from Orleans Parish and 1 from Iberville. For the 50th week of the year, ending December 12, 47 cases of pneumonia were listed and 28 of pulmonary tuberculosis, respiratory tract diseases again being the most frequently reported of all diseases. Then came 27 cases of cancer, 23 of syphilis and 14 of diphtheria. Pneumonia cases were just about at the average for the 5 year period, for this particular week. On the other hand a surprisingly few number of cases of influenza are listed for this time of the year, the 5 year average for this week for this disease being 1000.4. Another case of poliomyelitis was reported in the State, this time from Caldwell Parish and a case of encephalitis was reported from Acadia Parish. In this 5 week period reported here, 1 or more cases of poliomyelitis has been listed each week.

## WOMAN'S AUXILIARY

### Louisiana State Medical Society

President, Mrs. James Byron Vaughan, Monroe.

President-Elect, Mrs. George D. Feldner, New Orleans.

First Vice-President, Mrs. F. G. Ellis, Shreveport.

Second Vice-President, Mrs. T. H. Watkins, Lake Charles.

Third Vice-President, Mrs. E. B. Middleton, Homer.

Fourth Vice-President, Mrs. A. R. Arceneaux, Welsh.

Recording Secretary, Mrs. C. Grenes Cole, New Orleans.

Corresponding Secretary, Mrs. Joseph P. Brown, Monroe.

Treasurer, Mrs. Courtland P. Gray, Monroe.

Parliamentarian, Mrs. R. T. Lucas, Shreveport.

While this issue of the Journal goes to press before Christmas, it will not, in all probability, reach you, dear readers until after the Yuletide Season has passed. Nevertheless, my wishes are none the less sincere that you and those about you may enjoy a most bountiful and Merry Christmas Day and may the New Year bring to you Happiness, Good Health and Prosperity.

Mrs. George D. Feldner,
Chairman, Press and Publicity.

### OUACHITA PARISH

The Woman's Auxiliary to the Ouachita Parish Medical Society held their monthly luncheon at the Lotus Club, November 18, 1936. The hostesses for this month were Mrs. Graves, Mrs. Peters, Mrs. Milan, Mrs. Williams and Mrs. Gregory. During the luncheon, Mrs. Louis Whitfield sang a lovely solo, accompanied at the piano by Mrs. J. Kugler. Miss Bernice Wright, Executive Chairman of the Tuberculosis Association of Ouachita Parish, gave a most interesting talk to the members, outlining their work here and the development of the new hospital at Pine Top. She told of the number of hospitals for tuberculous patients and their capacity, in comparison with the number of cases. Mrs. J. P. Brown, President, presided at this interesting meeting. Mrs. Brown announced at this time that no luncheon or meeting would be held during the month of December and as is usual with our auxiliary, the proceeds usually used for these purposes, will be donated to charity.

Mrs. W. L. Bendel,
Publicity Chairman.

### JEFFERSON DAVIS PARISH

The Woman's Auxiliary to the Jefferson Davis Parish Medical Society held their December meeting in Welsh at the home of Mrs. E. V. LaCour. Mrs. R. R. Arceneaux conducted an interesting program. The January meeting will be held in Crowley with Mrs. J. W. Faulk.

Mrs. Claude A. Martin,
Publicity Chairman.

### ORLEANS PARISH

The Woman's Auxiliary to the Orleans Parish Medical Society enjoyed one of the interesting meetings of the season on December 9. Splendid reports from committee chairmen show that work of the Educational Program is making excellent progress.

The committee which undertook the raising of funds for our gift to the Orleans Parish Medical Library has done a fine piece of work. By their efforts, with the co-operation of our members, they have raised a sum of over four hundred dollars which will be given to the Medical Society to be used in binding and re-conditioning books in the library. The Christmas Seals are now on sale, which means that the work of the Tuberculosis

Committee, which was begun during the hot summer months, is now over.

The lovely posters with their health messages to children are now being enjoyed by each grade of the public schools. These were distributed during the past month as a gift from our organization in our campaign against tuberculosis. The work of the committee on safety, which is to be sponsored through the Woman's Auxiliary, have plans to encourage safe automobile driving.

Following the business meeting, Mrs. Arthur Nolte describes the unusual details of her trip with Mrs. Elizabeth Gilmer to the Orient and unfrequented islands of the Pacific.

Mrs. Edgar Burns,
Publicity Chairman.

# BOOK REVIEWS

*Principles of Human Physiology*: By Ernest H. Starling, C. M. G., F. R. S., Rev. and ed. by C. Lovatt Evans, D. Sc., F. R. C. P., F. R. S.: Chapters on Central Nervous system and Sense Organs revised by H. Hartridge, M. A., M. D., Sc. D., F. R. S. Philadelphia, Lea & Febiger, 1936. pp. 1096. Price $8.75.

The rapid growth of modern physiology is shown by the appearance in the last few years of new text-books and new and revised editions of some of the standard works. Among the latter group is the present volume, the 7th edition of one of the more informative of the human physiologies. Here is a wealth of material, old and new. New features, discussed in more or less detail according to their importance, deal with the vitamins, the hormones, the transport of carbon dioxide by the blood, the humoral transmission of nervous impulses, the recording of nervous impulses, the study of the reproductive cycle.

This is one of the best of the larger text-books of physiology. Clinicians will find here much that will aid them in understanding disease or abnormal physiology.

Henry Laurens, Ph. D.

*A Manual of Pharmacology*: By Torald Sollmann, M. D. 5th ed. Philadelphia. W. B. Saunders, 1936. pp. 1190. Price $7.50 net.

Professor Sollmann's aim has been to "furnish medical students—including interested practitioners—an outline of the current conceptions of the actions of drugs, especially from the point of view of their practical importance." In this he has been successful to a degree which must arouse the admiration of anyone whose task it is to give instruction in this branch of the medical sciences. In this book, more than in any other known to the reviewer, the student or doctor can find a complete, clear and correct statement of the clinically important actions and properties of the clinically important drugs. In addition, one interested in the more theoretical aspects of pharmacology can obtain much information otherwise obtainable only at the cost of finding and reading countless original publications. An extensive and accurate bibliography of articles referred to in the text is a feature which adds much to the value of the work.

The reviewer does not hesitate to express his opinion that a copy of this manual should be available to anyone desirous of acquiring a useful knowledge of the habit of prescribing.

J. T. Halsey, M. D.

*Tumors of Bone, Including Jaws and Joints*: By Charles F. Geschickter, M. D. and Murray M. Copeland, M. D. Rev. ed. New York City, Amer. Jour. of Cancer, 1936. pp. 832.

A foreword by Dean Lewis summarizes the interpretation of clinical findings in patients suspected of having bone tumors, and a second foreword by the late Joseph Colt Bloodgood outlines rules of diagnostic and therapeutic procedure for bone lesions.

In their introduction, the authors present what they consider the fundamentals of the genesis of primary bone tumors; i. e., there is a continuous transitional process incident to the development and maintenance of the skeleton even throughout adult life, and it is in association with the transitional phases occurring during osteogenesis that neoplasms of bone arise. The tumors related to osteogenesis are classified and sub-classified according to whether they are derived from precartilaginous connective tissue or whether they are related to growth subsequent to chondrification. The bone tumors of non-osseous origin are considered separately. In addition to the preliminary review of the embryonic processes concerned in the formation of bone, the salient points are reiterated as they pertain to particular tumors.

In general, the presentation is primarily from the standpoint of the genesis and pathology of the various bone neoplasms, with secondary consideration of their anatomical distribution. However, there is a chapter on such specialized skeletal structures as the cranium, jaws, and articular structures; a chapter devoted to a discussion of the osseous changes which occur in diseases of the bone marrow and lymphoid tissue; a chapter in which tumors of tendon sheaths, joints, and bursae are reviewed; and a special chapter on juvenile lesions of bone. A chapter on differential diagnosis presents the characteristics of non-neoplastic diseaeases which are frequently responsible for errors in diagnosis and included with this chapter is an ingenious roentgenographic diagnosis chart for diseases and tumors of bones.

A concise summary, including diagnostic suggestions, prognosis, and general principles of treatment, supplements the description of each type of bone tumor.

The authors have very ably coupled or blended their personal observations, interpretations, and conclusions based principally upon a critical and organized study and review of material in the Surgical Pathological Laboratory of the Johns Hopkins Hospital, with the accumulated material, observations, and deductions of other workers who have studied the pathogenesis and clinical manifestations and management of bone tumors. Heretofore formulated and accepted concepts of certain bone tumors are disputed or refuted in several instances in which the authors consider new evidence has been adduced or more rational interpretation is available. However, many controversial aspects of bone tumors are necessarily left unsettled and the authors indicate that judgment or decision as to procedure must in many cases be based on extended clinical observations accompanied by study of serial roentgenograms in the individual case.

The book is profusely illustrated with excellent photomicrographs, photographs of gross specimens, and reproductions of roentgenograms. There is a short but well selected bibliography following each chapter.

AMBROSE H. STORCK, M. D.

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*Endocrinology in Modern Practice*: By William Wolf, M. D., M. S., Ph. D. Philadelphia. W. B. Saunders, 1936. pp. 1018. Price $10.00.

This title for this work has been chosen with care because it is well suited to the content of material arranged throughout so as to present information to the practitioner who wants some assistance in establishing a diagnosis where glandular dysfunctions are concerned. The volume has been written about a mass of material whose clinical application is constantly stressed.

There is a conventional approach to the problems of presenting each member of the endocrine series, and one therefore finds each one described in its own chapter which opens with a relatively brief discussion of anatomy, histology, embryology, biology and physiology; embodies a more elaborate description of the better-recognized clinical states connected with the gland; and closes with a concise summary. For each of the following, there is a chapter: obesity, sterility, pregnancy, and the menopause. A large portion of the content involves discussion of what is entitled "The Endocrine Aspects of 'Non-Endocrine' Disease." In this section, there is presented for many of the frequently-encountered diseases a short discourse on the associated glandular abnormalities which are only too often not heeded while the presenting illness is treated. A third division, "Endocrine Diagnosis," is an orderly presentation of the various detailed steps taken along the road to the establishment of a diagnosis of disturbances of the ductless glands. Especially to be commended are those chapters which describe briefly the important laboratory tests and give somewhat more in detail their clinical significance. Here the practitioner will find in a very short form real data about the tests which are mentioned so often in everyday practise, how they are done, what they are intended to reveal, and what their limitations are. This section of the book provides a chapter on the choice of diagnostic procedures which may be made when a given glandular abnormality is suspected. The concluding, and smallest, portion of the work deals with therapeusis and does not measure up to the standard set by the earlier sections. The author tabulates the more commonly prescribed preparations and fails to note his personal experiences or to separate those which have some merit from those which are known to be inefficacious or inert. This is an error, for when glandular therapy is as confused as today, the tabulation of worthless preparations alongside the reputable products is apt to be considered by the uncritical as indicating that all those listed are acceptable despite the fact that the author introduces his subject by disclaiming any preferences and by announcing that he is merely listing and is not discussing these proprietaries.

This is an outstanding work which richly merits a place of usefulness in the library of everyone who considers glands of internal secretion. The concise summaries will appeal especially to the busy physician and the medical student; the more detailed text will provide a real delight for the one who reads it more leisurely. Because the author has attempted to approach his problem from several angles and has presented his material so that it may be available from any one of the several viewpoints commonly adopted by physicians consulting such works, there is a considerable amount of repetition. This is more an asset than a liability since the salient facts are presented a bit more forcefully thereby.

Dr. Wolf is to be commended for his orderly and scholarly efforts to transform things endocrinologic from the bewildering reports of experimental research to the more familiar domain of the practise of medicine.

SYDNEY JACOBS, M. D.

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*Fundamentals of Human Physiology*: By J. J. R. Macleod, M. B., D. Sc., F. R. S. and R. J. Seymour, M. S., M. D. St. Louis, The C. V. Mosby Company, 1936. pp. 424. Price $2.50

This excellent elementary text in physiology was first published by Pearce and Macleod in 1916 and revised by them in 1918 and 1924. The present revision has been by Professor Seymour "with but two ideas in mind, simplification of discussion and the addition of some of the newer facts that have been accepted by physiologists."

The major changes that have been made are concerned with the discussion of the vitamins and the endocrine glands which have been considerably amplified. The discussion of metabolism has been condensed to approximately half the space devoted to it in the previous edition and the chapter on immunity has been advantageously simplified. Approximately 30 figures and diagrams and a brief glossary have been added.

One minor criticism may be offered. In attempting to avoid controversial statements, the author has in a few instances perhaps unnecessarily abbreviated the discussions. Thus in discussing the anterior pituitary, brief mention is made of the growth, thyreotropic and adrenotropic hormones, but no mention is made of the intimate connection between the anterior pituitary and the gonads, a relationship which can hardly be questioned at the present time, even though some of the details may still not be clear. Otherwise, the newer material has been ably incorporated and the volume can be unreservedly recommended for use in introductory or elementary courses in human physiology.

H. S. Mayerson, Ph. D.

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*Theory and Practice of Psychiatry*: By William S. Sadler, M. D. St. Louis, C. V. Mosby Company, 1936. pp. 1231. Price $10.00.

A bound volume of 131 pages, divided into five parts with twenty-seven chapters, which could be classed as a combined old and new testament of the theory and practice of psychiatry, giving in detail the genesis of psychiatry through its various highways and bi-ways to a glossary intelligently prepared, and one which is essentially necessary when reading this text by way of explanatory data. The mental mechanisms, psycho-pathology, etiology, symptomatology and classificatiion of the psychoses are arranged in concise order, with a continuity easily read and understood.

The volume is especially planned for reading by the general practitioner and the social worker. The specialist will find much collateral reading aside from the psychiatric content. The mental hygienist and those dealing with personality problems can be guided to a great extent by the case histories which, in themselves, are illuminating and helpful.

The chapter on religious therapy is timely, conceding the necessity of a combined pastoral and medical-social psychiatry.

The "Philosophies of Life" are well covered in Chapter 74. The chapter dealing with therapeutics, embracing all types, likewise therapies, bespeaks not only an inexhaustible investigation but practical application as well.

This volume should please the most critical general practitioner and the most meticulous psychiatrist as an aid not only in collateral reading but as a *vade mecum* of psychiatry.

Walter J. Otis, M. D.

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*American Martyrs to Science through the Roentgen Rays*: By Percy Brown, M. D., F. A. C. P., F. A. C. R., Springfield, Ill. Charles C. Thomas, 1936. pp. 276, por. Price $3.50.

Not long after the discovery of the roentgen ray, there appeared in the medical literature reports of superficial x-ray burns. Shortly thereafter, reports were made of numerous cases of skin cancer developing on the hands and faces of physicians who had previously received roentgen ray burns, and many of them persisted in the use of the roentgen rays in spite of their intense suffering. Some developed metastasis and died as a result of their affliction. If the present day radiologist enjoys the protective devices of our modern roentgen ray apparatus, he can thank those pioneers who became martyrs to science in order that those who were to follow in this kind of work would be protected against the dangers of the use of roentgen rays.

Dr. Percy Brown, a prolific medical writer, has paid tribute to those pioneers who became martyrs to science. His book can well serve, lest we forget, as a reminder of the sacrifice made by these noble people. It also vividly describes the courage and enthusiasm displayed by the early users of the roentgen rays in their efforts to promote the progress of roentgenology.

To those who are interested in the development of the science of roentgenology, they will find in this book a rendition of true American spirit of sacrifice by these noble pioneers who, by giving their lives, have blazed the path for the existence of modern roentgenology.

Leon J. Menville, M. D.

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*Medical Classics*: Compiled by Emerson Crosby Kelly, M. D., Baltimore, Williams and Wilkins, 1936. Price $10.00 per year.

"Medical Classics", an entirely new conception of medical history which is being published by Williams and Wilkins, should be not only of interest to those physicians who have a love for the history of medicine, but also to the practitioners of medicine. As stated in the preface, it is desired that "Medical Classics" will be not only of historical interest but also of practical value. Original publications of fundamental importance will be published in detail and not merely a synopsis of the article so that the reader can have a true picture of the author's original conception of the disease entity.

In the first number are two of Sir James Paget's original contributions on osteitis deformans and also his original description of the disease of the mammary areolar, which bears his name. In addition to these publications of Paget's, which are given in full, there is Paget's complete biography. Preceding each of the two subjects discussed by Paget is a short resumé of the subject by the editor, giving a summary of the present day conception of the condition. "Medical Classics" should fill a very definite need in medical practice, and it is the reviewer's opinion that the intention of the editors will be fulfilled.

Alton Ochsner, M. D.

*The Relief of Pain*: A handbook of Modern Analgesia: By Harold Balme, M. D., (Durk.), F. R. C. S., (Eng.), D. P. H. (Land.), Philadelphia, P. Blakiston's Son & Co., 1936. pp. 392. Price $4.00.

This book is a resume of the therapeutics of many of the painful conditions to which man is subject. The first portion is devoted to a discussion of the general aspects of pain, its physiology, and the various theories related thereto. Following this, regional pains are considered with regard to causes and the available measures of relief that may be instituted. The concluding chapters are devoted to certain phases of physiotherapy and some of the analgesic drugs.

Although brief and therefore lacking in detail, it is wide in its scope and deals quite logically with such difficult subjects as sciatic syndrome and trigeminal neuralgia with the same facility as the technic of a nearly painless hypodermic injection.

The frequent use of British Pharmacopeial terms and of proprietary drugs will no doubt be a source of confusion to many readers in this country.

The book is well indexed and should serve as a useful reference work, especially for the general practitioner.

W. D. Norman, M. D.

*Surgical Clinics of North America*: New York number, June, 1936, Philadelphia; W. B. Saunders Co., 1936. pp. 266. Price $2.50.

This small volume contains some twenty-two articles presented in a concise manner, covering timely and interesting subjects. The neurosurgeon will find the article by Dr. Byron Stookey especially interesting, while the orthopedist will note a well presented discussion on the treatment of slipping of the upper femoral epiphysis. The genitourinary surgeon will find a comprehensive article on urinary infections in infants and children. The remaining portion of the volume deals with subjects pertaining to general surgery. Especially timely are the clinics dealing with surgical diseases of the parathyroids, this relatively new field being well discussed.

W. D. Norman, M. D.

*The Eye and Its Diseases*: By 82 International authorities; edited by Conrad Berens, M. D.; Philadelphia, W. B. Saunders Co., 1936. pp. 1254. Price $12.00.

English-speaking ophthalmologists are indebted to Dr. Berens for having compiled a new and excellent type of text book. In one volume, over seventy authors have contributed more information about eyes than is contained in any one book ever printed. It presents, and often in improved form, information and ideas seen in such outstanding ophthalmic text books as the seven volume Kurtzes Handbuch fur Augenheilkunde, De Schweintiz, and Weeks. Written essentially for the juvenile or adult ophthalmologist, this work is possibly too detailed for those seeking only the ABC'S.

Mention of the relative merits of many chapters and authors is impossible. Outstanding, in the reviewer's opinion, are the chapters on History of Ophthalmology, Anatomy of the Orbit, the Slit-lamp and Corneal Microscope, Developmental Defects, Glaucoma, Medical Ophthalmology, Surgery of the Eye and Immunology.

The lack of a uniform classification and a detailed table of contents somewhat reduce the practical value of this otherwise excellent work, as does repetition by overlapping of subjects. The study, especially of rarer ocular conditions, apparently is made needlessly difficult.

Both the authors and publishers are to be congratulated on the large number, and excellence of the black and white illustrations. One hardly misses colored illustrations that of course would have made this work prohibitive in price, as is the case with similar German volumes.

Chas. A. Bahn, M. D.

*The Clinical Use of Digitalis*: By Drew Luten, M. D., Baltimore, Charles C. Thomas, Co., 1936. pp. 226. Price $3.50.

The therapeutic use of digitalis is of interest to any medical man treating diseases of the heart. The author presents in a concise form clinical facts derived from old and recent literature, and with these he gives the results of his personal experience with digitalis and of original work done by himself.

The early part of the book concerns the practical physiology of the action of digitalis on normal and diseased hearts, stressing the muscular action of the drug as compared to its effect on the auriculo-ventricular bundle and the pace maker of the heart. The diuretic effect, the response of blood vessels and blood pressure, and electrocardiographic effects are discussed, as is the toxicology of digitalis. The subject matter is considered almost exclusively from the point of view of clinical experience and experimentation on human beings. Following this is given a detailed discussion of modern views concerning the indications, the methods of administration, contra-indications and dangers of digitalis. He closes with an excellent four-and-a-half page therapeutic thesis on the usage of the drug. In some parts of the book there is, perhaps, a tendency toward repetition, especially in the chapters concerning the physiological action of the drug on muscle, and its use in auricular fibrillation. The author's conclusion concerning methods of administration is most interesting in that he states that even now the best general guide to administration is that described by Withering in his original article on digitalis in 1785.

A few minor points might be considered as moot questions, but as a whole the arguments and reasoning are convincing and the therapeutic thesis is sound. The subject matter as a whole is briefly and accurately presented. An excellent and adequate bibiography is given. My experience with the drug does not qualify me to speak as a teacher, but as a graduate student I can say that the book proved decidedly valuable, and anyone, student or practitioner, who will use digitalis cannot help but derive benefit from studying this little volume.

G. F. Ellinger, M. D.

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*International Clinics*, Sept., 1936. Philadelphia, J. B. Lippincott, 1936. pp. 339. Price, 2.50.

In a discussion of a book of this nature, the reviewer cannot see any advantage in detailing the many excellent features of the well-written articles that make up this volume. The present book has very much to interest the internist. Of particular interest to the Professors locally is an article entitled "Pilonidal Sinus" by Dr. Mims Gage which because it is comprehensive, beautifully illustrated and written, should be mentioned.

I. L. Robbins, M. D.

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*Medicine and Mankind;* with an introduction by Eugene H. Pool, M. D.; edited by Iago Galdston, M. D. New York, D. Appleton-Century Co., Inc. 1936, pp. 217. Price $2.00.

This book contains a group of lectures which were delivered to the laity at the New York Academy of Medicine. Among the contributors are to be found such illustrious names as Harlow Brooks, George Draper, Elmer V. McCollum and Alexis Carrel. In these lectures are unfolded matters of vital interest concerning the body, the mind and their intimate relationships. The mystery of death and the story of vitamins are informative and interesting. Medicine of the Primitive Indian of the time of the grand monarch Louis XIV is calculated to hold the rapt attention of the reader. Though written in a popular style for the laity, it may well be read by the doctor with profit and pleasure.

I. L. Robbins, M. D.

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*Facts About Commercially Canned Foods.* New York, American Can Co., 1936. pp. 34.

This brochure published by the American Can Co., is a collection of reprints concerning the process of canning and facts about commercially canned foods.

I. L. Robbins, M. D.

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## PUBLICATIONS RECEIVED

P. Blakiston's Son & Company, Inc., Philadelphia: Oral Diagnosis and Treatment Planning by Samuel Charles Miller, D. D. S.

Harper & Brothers, Publishers, New York: Canary by Gustav Eckstein.

Harvard University Press, Cambridge: The Truth about Bright's Disease by William R. Ohler, M. D.

Hodder and Stoughton, Publishers, London: Patient and Doctor by Sir Henry B. Brackenbury, M. D., LL. D., M. R. C. S.

Paul B. Hoeber, Inc., New York: Skin Diseases in Children by George M. Mackee, M. D., and Anthony C. Cipollaro, M. D.

J. B. Lippincott Company, Philadelphia: International Clinics edited by Louis Hamman, M. D., Volume IV, Forty-Sixth Series, December 1936. A Textbook of Medicine by Charles Phillips Emerson, M. D.

The Macmillan Company, New York: Diseases of the Coronary Arteries and Cardiac Pain edited by Robert L. Levy, M. D. Truants by Lord Moynihan, K. C. M. G., C. B. of Leeds. Practical Examination of Personality and Behavior Disorders by Kenneth E. Appel, M. D., Ph. D., Sc. D., and Edward A. Strecker, M. D., A. M., Sc. D.

Rehabilitation Clinic, New York City: Vocational Rehabilitation and Workmen's Compensation by Carl Norcross, Ph. D.

William Wood and Company, Baltimore: A Synopsis of Surgical Anatomy by Alexander Lee McGregor, M. Ch. (Edin.), F. R. C. S. (Eng.)

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# INAUGURAL ADDRESS

JAMES T. NIX, M. D.*
New Orleans

Chaucer, in his quaint old English, tells us, "The greatest hunger of the human heart is approval of one's fellowmen." For a small spark of appreciation animals without reason perform in a manner pleasing and interesting to humankind. Our tailed atavistic ancestors ride bicycles, canines turn somersaults in the air, and the dumb seal will juggle a ball on its nose for a little encouragement. In an old scrapbook of my father, written forty years ago, I read,

"The love of praise, howe'er concealed by art
Is found and glows in every human heart.
The brave to seek it toils and toils endure;
The modest shun it and make it sure."

I remember so well an utterance by Charles Mayo, "A little taffy is worth tons of epitaphy." A garland of roses to the living is more than sumptuous wreaths to the dead. And, to crown this thought, I shall quote from the words of praise delivered to a group of Honor Students of Tulane University by that beloved and peerless leader, the father of surgery of the Southland, the most brilliant luminary in the constellation of the medical world, our own incomparable Doctor Rudolph Matas. "If you have a friend, tell him, for many a beautiful friendship, like a plant in a crowded corner, died for the want of sunshine on its leaves."

In all sincerity, I feel unworthy of this honor and far less deserving of the circumstances attending it, an occasion which takes first place in the cherished events of my life.

Distance lends enchantment. Recognition of merit usually comes from afar, in the form of tablets, medals, certificates to be hung on the walls or pinned on the lapel of one's coat, certifying to the truth of the old sayings, "No man is a prophet in his own country," "No man is a hero to his own valet."

But when it springs from your own associates with whom you have lived and labored for twenty-five years, when it is given in a community vibrant with the dreams of your own youth and early manhood, mellowed with the shadows of tender sorrows, enriched by ten thousand fond memories, when it is presented with no dissenting voice from esteemed and brilliant contemporaries in the noblest of the professions—the pen falls, words fold up, description is powerless—gratitude crystallizes and locks inarticulate a heart that is full to overflowing. Cicero calls gratitude the mother of the emotions. It is truly the memory of the heart.

The honor which I shall forever cherish no matter how long be my days, tells me not so much what I am as what I should be, and will have served its noble purpose if it spurs me to loftier deeds and greater achievements in the path outlined and directed by the worthy predecessors whose work I shall attempt to carry on, whose ideals I shall strive to emulate, whose wise counsel I shall diligently seek to obtain.

The policy of the incoming President, beginning the year 1937, would direct him to outline a program. However, he will not make promises but attempt to make good. An ounce of performance is worth a pound of preachment. If, at the end of this year, he shall have accomplished only a small part of that of his able predecessors another annual of progress will have been recorded in the history of the Orleans Parish Medical Society.

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*Address delivered before the Orleans Parish Medical Society January 11, 1937, when inducted into position of President of this Society.

Above all, it shall be the aim of this administration to maintain and foster the fine feeling and beautiful harmony that ushered it into office. Medicine knows but one nation, the Nation of Mankind. It has but one common enemy, Disease. There should be no discord within our ranks; difference, yes, but not disagreements.

Perseverance, performance, progress and peace is my pledge. With the united support of the entire organization and surrounded by an executive board, in my humble opinion, second to none, I trust that the dwarf will see as far as the giant because he has the giant's shoulders to stand on.

A powerful lesson of unity is told in one of Aesop's fables. The father was on his deathbed and he called his fine, stalwart sons to his side. Taking from beneath his pillow a small bundle of sticks, held together by a bit of twine, he handed it to the firstborn and asked him to break it. As he failed, he handed it to each of the other boys who in turn failed likewise. Then removing the twine he broke the sticks into bits one by one. Turning to the boys he offered his advice, "My sons, as long as you stand together, nothing can do you harm, but once separated, you are at the mercy of your foes." Napoleon with his mighty Army intact was invincible, but with one marshall late he lost Waterloo. *"Divide et impera"*—the battle cry of the war lords of old—"Divide your enemies and conquer them." And again from the dusty leaves of Latin lore, *"Inimici ejus, domestici ejus,"* our greatest enemies can be within the home. Translating this thought into our latter day English, "United we stand, divided we fall."

Let us grapple our membership together with hoops of steel. Let us go forth united with one ideal and for one common cause: the ideal, to relieve, to comfort, to cure, to bring happiness; the common cause, suffering humanity.

Then come the wild weather,
Come sleet or come snow
We'll stand by each other,
However it blow.

And now, in closing, may I ask your kind indulgence as I sketch the character and voice the thoughts of a most grateful of grateful patients, endeared as no other to my heart, an unassuming man, one of Nature's noblemen, one of God's guardsmen. Though confined to a hospital room for more than six months, his frail human form wracked and twisted by constant cruel pains, there never passes a day that he does not give words of advice and comfort, his blessings and cheer to the numerous friends and penitents who seek him out. And withal in deep sincerity and with humble thanks, I have been told he offers this daily prayer, "Dear Lord, make me worthy of the esteem and confidence of my friends." May I make his words my own, and at the end of this term of office may I still be deemed worthy of the esteem and confidence of the splendid physicians who have elected me to the highest honor of their historic organization.

# THE VACCINE TREATMENT OF ASTHMA IN CHILDHOOD*

EMILE NAEF, M. D.†
NEW ORLEANS

The vaccine treatment of bronchial asthma is no new therapeutic approach to the baffling problem of respiratory allergy. Twenty-one years ago Babcock[1] reported successful treatment of a case of asthma by the use of an autogenous vaccine. Again in 1919, Walker[2] pointed out the significance of vaccines in the treatment of bronchial asthma. Among later investigators who found the vaccine treatment of sufficient merit to publish the results of their work were Sicard[3], Hutcheson and Budd[4], L. Rogers[5], Wickett, Corley and Connell[6], Rackemann and Graham[7], Wherry[8], Dorst[9], Voorsanger and Firestone[10], Haibe[11],

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

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Graeme Mitchell and M. L. Cooper[12], and Banks and Beasley[13].

Working on the theory that desensitization was attributable more to the non-specific protein factor in the vaccines than to any specific action of skin-reacting bacterial proteins, van Leeuwen[14] used tuberculin as a desensitizing agent in 300 cases of asthma after finding that most sufferers from allergic disease are hypersensitive to tuberculin. The results of his work, published in 1922, proved almost as satisfactory as the results obtained in the use of specific autogenous vaccines. He stated that "hypersensitiveness to a certain causative agent may be reduced also by the injection of small quantities of another allergen, provided the patient is hypersensitive to the latter allergen also."

Nelson and Porter[15] expanded the idea of non-specific protein therapy by the use of a simple animal protein broth in high dilution with 40 per cent complete inhibition of the spasm and 35 per cent marked improvement. However in their plan of desensitization, they found it necessary to continue weekly injections of the broth in high dilution in order to prevent allergic spasm, otherwise no fixed desensitization was obtainable.

The major portion of the reported work in the vaccine treatment of asthma is based on the observation of Walker[2] who in 1919 recognized two distinct types of asthmatic patients, "those in whom some foreign protein, either of the inhalant or ingested variety, initiated the attack, and a second type in whom the attack was aggravated or precipitated by a superimposed infection."

This latter method of infection is especially common in the infant or very young child. In the very young individual in whom upper respiratory tract and bronchial infections are frequent, there develops a gradually increasing amount of wheezing. Following two or three attacks of asthmatic bronchitis, the recurring attacks become more definitely paroxysmal and true bronchial asthma appears with its shrill spasmodic rales and pronounced dyspnea of variable duration. Likewise, one is continually impressed with the frequently obtained history of a protracted case of whooping cough having initiated asthma in a child with a definite allergic heredity in one or both lines of antecedents. Cooke[16] studied the influence of heredity on the age of onset and concluded that the more complete the allergic inheritance, the earlier the age of onset. He further discovered that of all children with bilateral allergic inheritance about 70 per cent will become allergic, while 50 per cent of all children with unilateral inheritance become allergic.

Reviewing the literature, the disclosure is made that several effective plans of specific or non-specific bacterial protein desensitization by intramuscular injection of autogenous or stock vaccines are pursued, all of which are reported almost equally effective. The earlier investigators were evidently impressed with the specific action of the vaccines used and autogenous vaccines were made from the predominating strain or strains of organisms cultured from the saliva of asthmatics. Walker[17] concluded that beneficial effects should not be expected in the majority of cases for more than one year because of the change of bacterial flora of the oral cavity each fall; therefore cultures were taken annually at this season and vaccines prepared from the predominating organism present.

Sicard[3], Hutcheson and Budd[4], Rogers[5], Wickett, Corley and Connell[8], Dorst and Wherry[9], Mitchell and Cooper[12], and Banks and Beasley[13] used specific autogenous vaccines, while Rackemann and Graham[7] and Voorsanger and Firestone[10] reported equally good results with either a specific autogenous vaccine or the non-specific stock vaccines.

The usual procedure in the preparation of autogenous vaccines made from the sputum consists of collection of fresh sputum in a sterile container, and the making of cultures on blood agar plates. From the first plates, second cultures are made from the predominating colonies and further growth obtained on the second plates. Then a tube of dextrose broth is inoculated from the second plate and growth continues for 24 hours. This is followed by washing of the growth with salt solution containing a 0.5 per cent carbolic acid. Suspension of the vaccine in this carbonized saline and heating to 56° C. for one hour completes the preparation.

Vaccines are made from each of the several strains of predominating organisms and intradermal tests are made to determine sensitivity. After determining the strain or strains to which the patient is allergic, the specific vaccines are injected intramuscularly with special desensitization as the object.

Various plans of administration of the selected vaccine are used, some giving initial .065 c.c. doses and increasing gradually every two to four days until repeated 1 c.c. doses are administered intramuscularly. Others give larger doses at longer intervals, the average maximum dose being 1 c.c. except in the case of a recent report wherein the pertussis prophylactic vaccine of Sauer was used in increasing doses up to 3 c.c. in obstinate cases.

Recalling the impressive success obtained through the use of mixed pertussis vaccine in 1925 in the case of two children suffering with post-pertussis asthma, it was decided at the beginning of this study to employ the stock vaccine administration as a routine measure in the desensitization of this series of asthmatics.

The sixteen patients of the group include the routine asthma cases admitted in the pediatric service of the Hutchinson Memorial Clinic and three private cases which are included for completeness as regards home environment and intelligence of home care. There were seven females and nine males in the group. Ages varied from 14 months to 12 years. No type selection of intrinsic or extrinsic asthma was made, and patients were routinely administered the vaccine without attempting to discover a specific bacterial sensitivity by skin-testing. Invariably these patients had received previous treatment at some allergy or pediatric clinic, with no permanent response.

Attempts at discovering a foreign protein sensitivity were employed in the history-taking and any article of diet or contact protein which could be fixed in the etiology was removed.

Physical examination included a search for any possible focal infection, attention being paid to presence of tonsils and adenoids and their condition, appearance of the pharyngeal wall, and presence of any alveolar abscesses or dental caries. Attention was directed toward any endocrine dysfunction, and basal metabolic rates were determined in any questionable thyroid symptom-complexes. Routine roentgen rays of the chest were made in all cases and sinuses were roentgen rayed in the older children. Routine urinalyses to exclude chronic pyelitis, and blood counts to exclude acute inflammatory reactions were made. Tonsillectomies were performed whenever repeated colds and the persistence of cervical adenopathy justified an impression of chronic toxic absorption from the tonsils, or when obstructive signs, mouth-breathing and snoring, were present. In regard to sinusitis, Weille[18] found 80 per cent of his asthmatic patients showing some degree of sinusitis, and 75 per cent of these patients with an intrinsic asthma showed beneficial response to nasal surgery. The intradermal Mantoux test was done routinely.

The use of intradermal allergy tests or skin scratch testing was abandoned largely because of unsatisfactory final readings obtainable, some tests being found positive when the patient showed no clinical sensitivity, and again some patients showing such a complete generalized sensitivity to every allergen tested that every known source of protein in diet or environment would of necessity be excluded. Patients have also been seen who in spite of a known clinical allergy to a specific foreign protein are found to be negative on skin-testing. In this connection Rowe[21] of Oakland found food allergy existing in at least 50 per cent of his food-sensitive patients without skin reactions. Peshkin[20] reports a 10 per cent error in skin-testing.

Patients were put on a low histidin diet after the recommendation of Eustis[19] in a much earlier investigation, and the diet of each patient was further restricted to meet any special indication in the individual case. Elimination was effected with free use of saline laxatives whenever necessary.

Calcium in the form of calcium gluconate dissolved in orange juice was given by mouth in a 24-hour dosage of 45 grains, with an increase to 60 grains daily in the presence of wheezing. The only other routine medication was ten drops of syrup of ferrous iodide three times daily to maintain a constant iron intake.

The two forms of stock vaccine used were mixed pertussis vaccine, used in fourteen of the cases, and mixed catarrhalis vaccine used in the remaining two cases.

(V-832) Lilly

| | | |
|---|---|---|
| B. pertussis | 4,000 | million |
| B. influenzae | 200 | million |
| Streptococci | 100 | million |
| Pneumococci | 200 | million |
| M. catarrhalis | 100 | million |
| Staphyl. aureus | 400 | million |
| Staphyl. albus | 100 | million |
| | 5,100 | million |

Bio. 625 P. D. & Co.

| | | |
|---|---|---|
| B. pertussis | 4,000 | million |
| Staphyl. aureus | 500 | million |
| Strept. hemo. & non-hemo. | 100 | million |
| Micrococcus cat. | 40 | million |
| Infl. bac. (Pfeiffer) | 160 | million |
| Pneumoc. types 1,2,3,4. | 200 | million |
| | 5,000 | million |

Bio. 614 P. D. & Co.

| | | |
|---|---|---|
| B. Friedlander | 50 | million |
| Pneumo. (4 types) | 100 | million |
| Micr. catarrh. | 50 | million |
| Strept. hemo & non-hemo | 100 | million |
| Staphyl. albus | 350 | million |
| Staphyl. aureus | 350 | million |
| Pseudo-diph. B. | 100 | million |
| B. infl. (Pfeiffer) | 100 | million |
| | 1,200 | million |

An initial dose of 0.3 c.c. of the vaccine was given intramuscularly, followed by 0.65 c.c. dose at the end of 48 hours. After these two smaller doses, three doses of 1 c. c. each were given at 48-hour intervals followed by three 1 c. c. doses at weekly intervals. Local reactions in the form of a large wheal of erythema and some sensitiveness on passive manipulation were frequently encountered and usually implied effective desenitization. Constitutional reaction in the form of temperature elevation was encountered in two cases, one of whom was permanently relieved of her asthma, and the other showed definite improvement.

The presence of sonorous and sibilant rales per se was not deemed a contraindication to administration of the vaccine, but the presence of any suggestion of dyspnea or hyperpnea was regarded a definite contraindication. As soon an any evidence of this sign appeared, adrenalin chloride 1:1000 was administered by needle. Oddly enough one mother presented her baby of 16 months at the clinic in the full throes of an asthmatic dyspnea requesting a fellow staff-member that the vaccine be given in my absence. The request was granted and beneficial response within 30 minutes was much more complete than in the case of adrenalin or ephedrine administration in previous seizures. However this experience did not cause any changing of our plan of withholding the vaccine in the presence of dyspnea.

Following the initial course of vaccine administration the mothers were advised to bring their children to the clinic for further vaccine administration at the initial stages of any upper respiratory infection, i. e. at the onset of sneezing and a watery nasal discharge. At their reappearance at the clinic 1 c. c. of the vaccine was given and followed in 48 hours by a second dose. Occasionally wheezing developed in spite of the treatment, and a third dose was given with impunity in the absence of dyspnea.

| | Number of Cases | Vaccine | Cured | Impr. | Unimpr. |
|---|---|---|---|---|---|
| Sicard | 16 | Autogenous and Stock | 75% | -------- | -------- |
| Hutcheson & Budd | 40 | Autogenous | 60% | 25% | 15% |
| L. Rogers | 40 | Autogenous | 52% | -------- | -------- |
| Wickett, Corley, Carroll | 13 | Autogenous | 76% | -------- | -------- |
| Rackemann & Graham | 90 | Autogenous | 53% | -------- | -------- |
| | 41 | Stock | 68% | -------- | -------- |
| Voorsanger & Firestone | 22 | Stock | 32% | 36% | 32% |
| I. C. Walker | 150 | Autogenous | 40% | 20% | 40% |
| | 28 | Stock | 75% | 21% | 4% |
| Banks & Beasley | 143 | Autogenous | 80% | -------- | 20% |
| Author's Series | 16 | Stock | 68% | 18% | 14% |
| Total | 472 | Autogenous | 62% | 22% | 16% |
| | 107 | Stock | 60% | 24% | 16% |

Comparative results of use of autogenous and mixed vaccines.

## CASE REPORTS

R. S. was seen first November 23, 1934 at the age of 8 years. Previously had had chicken pox, measles and pneumonia. Patient had had no previous allergic manifestations and no known food sensitivity. Tonsils plus 2; Mantoux test was not made. Child had had asthma for one year and had upper respiratory infection on December 3, 1934 and January 18, 1935. The mixed pertussis vaccine was used, giving 0.3 c.c., 0.65 c.c. and then 1 c.c. for 8 further doses. The patient was apparently cured. Condition was post-pneumonic.

M. T. F., a patient 9 years of age, was seen first on February 18, 1935. Previously had had chicken pox and frequent colds. Previous allergic manifestations were croup since infancy and hives at 7 years of age. The tonsils had been removed. Had had asthma for 2 months. Mixed pertussis vaccine was used giving usual amount in 10 doses. The patient was apparently cured.

A. P. B., a patient 8 years of age, seen first on October 14, 1935, had had previously measles, mumps and frequent colds and a severe case of whooping cough at age of 3 years. No previous allergic manifestations. Tonsils had been removed. No food sensitivity; Mantoux test made October 16, 1935 was found to be negative. Had had asthma 4 years. Acute rhinitis November 6, 1935. Mixed pertussis vaccine used in treatment; following usual procedure, giving 6 doses. This patient was cured.

J. J. K., 4 years of age, seen first on February 13, 1935. Had had measles, diphtheria, and pneumonia and had suffered from attacks of croup since age of 1 year. Tonsils plus 1, slight inflammation, no cervical adenopathy. No known food sensitivity; Mantoux test made February 15, 1935 was negative. He had asthma for 2 years. Roentgen ray of lungs showed hilar shadows slightly enlarged, parenchyma lung negative for tuberculosis. Acute rhinitis January 6, 1936. Mixed pertussis vaccine used in treatment; giving 4 doses. Patient was apparently cured. Condition post-pneumonic.

S. M. B., 7 years of age, was seen first on October 15, 1934. Previous infections: measles, chicken pox and pneumonia. Patient had had no previous allergic manifestations and no known food sensitivity. Tonsils were removed at age of 3½ years. Mantoux test was made February 15, 1934 and found to be positive. Patient had had asthma for 6 years. Roentgen ray examination of lungs showed suggestive hilar tuberculosis. Intercurrent upper respiratory infection showed: on November 26, 1934, slight wheezing, no dyspnea; January 4, 1935, acute coryza, no whooping or dyspnea; February 12, 1936 acute coryza, no whooping or dyspnea. Mixed pertussis vaccine used in treatment patient being given in usual way a total of 28 doses. Patient apparently cured. Condition post-pneumonic.

L. M. was first seen December 6, 1933 at 6 years of age. Maternal grand-mother and great-grand-mother had had asthma. Child had had measles and mumps and severe case of whooping cough at age of 2 years and also had had croup. Tonsils were removed September 5, 1933. There was no known food sensitivity. Mantoux test made on November 14, 1934 was found to be negative. Child had had asthma for 3 years. Roentgen ray examination of lungs showed interlobar pleura thickened on right and hilar lymph gland enlargement but negative for parenchyma tuberculosis. Intercurrent upper respiratory infection showed: on

April 30, 1934, February 15, 1934 and April 28, 1935, slight wheezing, no dyspnea. Treatment was instituted by giving mixed pertussis vaccine in usual way in 28 doses. Patient was cured. Condition was post-pertussis.

M. G., a patient 9 years of age, was seen first on October 28, 1935. Had previously had measles, mumps, frequent colds and whooping cough when 3 years of age. Tonsils had been removed. There was no known food sensitivity or previous allergic manifestations. Mantoux test was found to be negative. Had had asthma for 4 years. Roentgen ray of lungs showed slight thickening lower right bronchial region. Attack of acute rhinitis November 15, 1935. Mixed pertussis vaccine was used in treatment, following usual method, giving 5 doses. Patient was cured.

S. J. F. was first seen January 25, 1935; 14 months old. Maternal grand-father had had asthma. There were no previous infections, but whooping cough developed on April 9, 1936. Patient had had eczema since third day of life and had had asthma 13 months. Child had food sensitivity to cow's milk, egg white and egg yolk. Mantoux test on October 16, 1935 was negative. Tonsils normal in size and appearance. Roentgen ray of lungs showed enlargement of thymus on January 25, 1935. On April 10, 1936 thymus and lungs were negative. This child had had acute rhinitis with frank asthmatic seizure on October 9, 1935. Given mixed pertussis vaccine in usual way in 21 doses. The response to treatment was "improved". This child had thymic syndrome in infancy and now averages one asthmatic attack every 6 to 12 weeks, when previous to treatment it had averaged every 2 weeks.

W. J. G., 7 years of age, was first seen December 16, 1935. Had had no previous infection except whooping cough at age of 4 years. No previous allergic manifestation or known food sensitivity. Tonsils were small, atrophic and submerged. Mantoux test made on December 18, 1935 proved to be negative. Had had asthma for 3 years. Roentgen ray of lungs showed parenchyma negative but an old interlobar pleurisy. Intercurrent upper respiratory infection: on December 27, 1935 showed wheezing 12 hours, no dyspnea and on March 25, 1936 acute coryza. This patient was treated with mixed pertussis vaccine given in usual method in 9 doses. Patient was cured. Condition post-pertussis.

D. R. G., was first seen April 27, 1934 at 8 years of age. Previously had had chicken pox, measles and mumps, eczema for 3 years and croup. Tonsils were plus 1. There was no known food sensitivity. Patient had had asthma for 3 years. Doctor treated child with mixed pertussis, the usual amount being given for 4 doses, when patient deserted in an unimproved condition after being under observation for 5 weeks.

B. L. L., 8 years of age, was seen first on April 24, 1935. Maternal grand-mother had had asthma and hay-fever. Child had had chicken pox, frequent colds and measles and had suffered from croup with vomiting. Tonsils were small, atrophic and submerged, cervical adenopathy plus 1. There was no known food sensitivity. Mantoux test was made and found to be negative. Child had had asthma for 5 years. Intercurrent upper respiratory infection occurred on October 1, 1935, October 21, 1935 and January 6, 1936, acute rhinitis. This patient was treated with mixed pertussis vaccine, 0.3 c. c.; 0.5; 0.65 and 1 c. c. in 11 doses, and was cured.

J. G. T. was first seen February 18, 1933 at 7 years of age. Had previously had pneumonia, mumps, measles and croup. In January, 1936 had whooping cough with bronchopneumonia. Tonsils had been removed. There was no known food sensitivity. Mantoux test proved to be negative. Child had had asthma 4 years when first seen by doctor. Mixed catarrhal vaccine was used, patient being given 0.25; 0.4; 0.5; 0.75; then 1 c.c., 20 doses in all. Patient was cured. Developed pertussis in January 1936 with bronchopneumonia, however there were no further asthmatic evidences.

J. L., aged 6 years, was first seen January 7, 1934. Child had previously had measles and severe case of whooping cough at age of 4 months. Tonsils were spongy and congested; R plus 2 and L plus 1. There was no known food sensitivity or previous allergic manifestations. Mantoux test was negative. Child had had asthma 10 months and was treated with mixed catarrhal vaccine. Patient was cured.

R. F. K., a 10 year old patient, whose paternal aunt and grandfather had had asthma was first seen on October 11, 1935. Child had previously had measles and a mild case of whooping cough as well as eczema in infancy and hay-fever at the age of 3 years. Tonsils were plus 2. Child showed a food sensitivity to cow's milk, egg white and egg yolk. Mantoux test made on March 23, 1936 was found to be negative. Patient had had asthma for 8 years. Roentgen ray of lungs showed bilateral enlargement tracheo-bronchial nodes, parenchyma negative for tuberculosis. Was given 16 doses of mixed pertussis vaccine in the usual fashion. This child improved. Has had two frank asthmatic seizures since first seen, however had previously had attacks approximately every 2 or 3 weeks.

P. J. C., a patient 2 years of age, was first seen June 28, 1935. Mother, maternal grandmother and great grandmother had had asthma and eczema. Child had had pneumonia and measles and at age of 9 months had had whooping cough. At the age of

1 year had case of hives and had suffered with asthma for 6 weeks. Tonsils were plus 3 with cervical adenopathy. There was no known food sensitivity and Mantoux test made July 3, 1935 was negative. Child was given 16 doses of mixed pertussis vaccine in usual manner and improved. Condition was post-pneumonic. On October 16, 1935 child had frank asthmatic seizure which was the only attack since beginning of treatment.

C. B., a child 12 years of age, was seen first on November 10, 1933. Two maternal aunts have been victims of asthma. Child had measles and chicken pox and a severe case of whooping cough at the age of 2 years. Tonsils were removed when patient was 5 years of age. There was no previous allergic manifestations or known food sensitivity. Mantoux tests were made on November 6, 1934 and March 13, 1935 and both were found to be negative. Child had had asthma for 9 years. Roentgen ray examination of lungs showed glandular structure at hilum enlarged, parenchyma negative for tuberculosis. Mixed pertussis vaccine was given, in the usual way in 21 doses. Child did not improve; condition was post-pertussis. This patient had chronic asthma of 9 years' duration. During 2 year observation lungs were free from rales only at long intervals for 2 or 3 days. Dyspnea was frequent and severe.

### SUMMARY

Realizing a lack of completely favorable results in the plan of protein desensitization by injection of specific skin reacting allergens, a plan of non-specific bacterial protein desensitization was used as a routine therapeutic procedure in a series of asthmatic children.

Because of possible confusion in the interpretation of skin-scratch test readings, it was felt that the results obtained did not justify the discomfort suffered by the patient, and allergen skin-scratch testing was not used.

Sixteen cases of bronchial asthma in children of both sexes ranging from 14 months to 12 years were given intramuscular doses of stock mixed pertussis and mixed catarrhalis vaccine for non-specific protein desensitization.

The plan of administration of the vaccine entailed the giving of 1/3 c.c and 2/3 c.c. doses forty-eight hours apart followed by three 1 c. c. doses at forty-eight hour intervals and three 1 c. c. doses at weekly intervals. Presence of dyspnea was regarded as the only contraindication to the administration of the vaccine.

The results of the treatment showed 68 per cent complete inhibition of allergic spasm, and 18 per cent improvement of the condition both in recurrence and severity of seizures; 14 per cent showed no response whatever to treatment.

Upwards of 75 per cent of the Mantoux tests were negative, showing a low incidence of tuberculosis in the asthmatic child.

### CONCLUSIONS

Non-specific bacterial protein desensitization is a valuable adjunct in the routine treatment of asthmatic children.

The action of the stock vaccine used is non-specific and favorable results may be obtained in both the extrinsic and intrinsic types of asthma.

It is impossible to state in advance which individual is going to benefit by the vaccine treatment.

One can not declare a patient permanently cured of asthma, because of the multiplicity of allergic reaction, and the possibility of a recurrence in its old or a new form after years of complete freedom from allergic spasm.

One of the most gratifying results of this plan of treatment is the high percentage of freedom from dyspnea obtained, and if this alone can be promised in any plan of treatment, it certainly justifies continued repetition of the vaccine administration.

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## DISCUSSION

Dr. Allan Eustis (New Orleans): I want to ask Dr. Naef if he took roentgen rays of these childrens' chests. A vast majority have evidence of mediastinal involvement of glands which accounts for the frequency with which functional asthma follows. In connection with this, I do not know whether you can see it with children, but in adults the chronic adenitis in these cases is very interesting. I use diathermy through the mediastinal glands. I have had patients with constant coughing, relieved after five or six applications of diathermy, and in those few cases controlled with roentgen ray examinations there is definite evidence of improvement in diminution in the shadow of the hilum. Diathermy used in complicating mediastinal adenitis is an excellent thing.

Dr. Harris Hosen (Port Arthur, Texas): Before treating asthma by any routine method it is necessary to differentiate between the various etiologic types. The two main types are the exogenous and endogenous; the former deals with pollens, foods, dust, the latter deals with infection. In exogenous asthma an attack is precipitated when the patient comes in contact with some element to which he is sensitive. The epithelium of the respiratory tract throws out secretions which diminishes the size of the air passages in the lungs, thus giving the mechanical symptoms of asthma. Microscopic examination of these secretions show a preponderence of eosinophiles, thus establishing the diagnosis. In the endogenous type there is usually an infection in the body, almost invariably of the upper respiratory tract, due to organisms to which the patient has become sensitive. But sometimes, and probably often, an attack of asthma of this type is merely due to a descending infection originating from an upper respiratory infection. The descending infection causes an irritation of the lining of the lungs which throws out secretions, thus diminishing the size of the air passages. This mechanism gives the symptoms of asthma. This type of asthma invariably follows an acute flare-up of the original focus, usually manifested by the presence of a cold a day or two before the asthma begins. An examination of the secretions of this type shows a preponderence of neutrophiles and few or no eosinophiles. By such microscopic examination we can differentiate between the two types of asthma which should be treated accordingly. From the results mentioned in Dr. Naef's paper, I will have to concede that his cases were probably of the infectious type, but I want to emphasize the necessity of removing the source of infection as being the most important phase of treatment. Vaccine therapy which has its important place will never give permanent results as long as the focus is not removed. The foci stressed in this series of cases appeared to be the lungs which were reported as having enlarged hilar glands. Such findings, I feel are rarely if ever the primary source of infection. Whenever the lung shows evidence of chronic infection, nontuberculous in origin, one can be assured that in the vast majority of cases there will be a concomitant sinus infection. Treatment of the lung in the face of such a condition is worthless. Removal of the sinus condition automatically gives a cure to the lung pathology unless bronchiectasis has already developed. I can make this statement for in my own investigation of this subject I took routine roentgen rays of the lungs and sinuses and found that 98 per cent in a series of 100 cases with chronic bronchitis had a sinusitis. Treatment of the sinusitis invariably relieved the symptomatology present. Therefore in our bacterial asthmas drainage, plus vaccine therapy will give results of a permanent nature. But, if the sinus condition is not treated accordingly, vaccine therapy cannot possibly give pleasing results unless the sinusitis is of a short duration, in which case vaccine therapy alone will often clear up the condition.

Sinusitis is often present in cases that are nonbacterial but due to pollens, or food, but this sinusitis is not of an infectious type. Cameron of Glascow, Scotland, has shown in a remarkable work that infectious sinusitis is very infrequent in true asthmas, but a thickened membrane often occurs in both hay-fever and asthma. A study of antral washings will differentiate between the two types of sinusitis. For example I take my own case; I had hay-fever for several years due to sensitivity to various grasses. I had three years of specific treatment by Dr. Efron of New Orleans, with the result that I have been free of hay-fever for the past two years. Roentgen rays show thickened membranes yet I have never had a single symptom of infectious sinusitis. In the last two years I have had only one cold.

In conclusion I want to stress the necessity of differentiating between the infectious and non-infectious asthma and the necessity of removing the focus of infection, which almost invariably is in the sinuses. Vaccine therapy is necessary but is secondary to the removal of the sinus infection.

Dr. Emile Naef (In conclusion): Dr. Hosen amplified my statement to the effect that we have to remove all sources of infection before we may expect to get any effect from vaccines. In the light of our present knowledge, we do not know where immunity ends and allergy begins and until we remove all sources of chronic infection, the vaccine treatment is not going to be effective.

The presence of tracheobronchial adenopathy, as described by Dr. Eustis, was investigated by roentgen ray and more than 75 per cent of the series showed some degree of adenitis. This mediastinal adenitis was proved to be non-tuberculous by the Mantoux test in all but one patient, the hypertrophy of the glands, therefore, being most often a residual of focal infection in the upper respiratory tract.

Roentgen ray is of definite value in allaying the severe reflex cough through shrinkage of these glands, but I am not impressed with any permanent effects on the patient's allergy being derived directly from the roentgen ray.

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# A CLINICAL STORY OF NEPHRITIS IN CHILDHOOD*

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NEW ORLEANS

The subject of nephritis in childhood has undergone many changes and much confusion has resulted. These changes are due chiefly to a better understanding of the nature of nephritis of childhood and also to the realization that nephritis of childhood is different from nephritis seen in adults. The child reacts to disease entirely differently from the adult, because he is a growing individual and his cardiovascular system has not been attacked by the chronic diseases. As a result, therefore, we see nephritis in its pure form.

What is proposed in this paper is a purely clinical approach to the subject. It will include a classification of nephritis in childhood, a brief discussion of each variety, a discussion of the more common diagnostic aids and their interpretation, and also an outline of the treatment of nephritis in childhood, including a discussion of the treatment of the cerebral manifestations with convulsions or, as it is some times spoken of, uremia.

The classification of nephritis in childhood has been variously proposed by different writers, but they are essentially the same. The classifications of Volhaard and Fahr, and of Addis are used herein as a basis. Their classification is hemorrhagic Bright's disease or glomerulonephritis, degenerative Bright's disease or nephrosis, arteriosclerotic Bright's disease or nephrosclerosis. The finding of albumin in the urine is often erroneously diagnosed as nephritis. It must always be kept in mind that albumin may be found in perfectly healthy children. It may appear after exercise, overeating, exposure to cold, in rapidly growing children, during adolescense, or in the condition known as orthostatic albuminuria. Albumin is often seen following febrile states, in which instance it is undoubtedly due to cloudy swelling of the kidney and it clears up soon after convalescence. Also it must not be forgotten that albumin is seen in the urine when pus cells and red cells are present.

The varieties of true nephritis may be classified as follows:

1. (a) Acute hemorrhagic Bright's disease (Addis).
   (b) Acute post-infectious nephritis (Aldrich).
   (c) Acute glomerulonephritis (Volhaard and Fahr).
   (d) Acute hemorrhagic nephritis.
2. (a) Parenchymatous.
   (b) Tubular.
   (c) Nephrosis (Volhaard and Fahr).
3. (a) Degenerative Bright's disease (Addis).
   (b) Arteriosclerotic nephritis.
   (c) Nephrosclerosis (Volhaard and Fahr).
   (d) Chronic interstitial nephritis.
   (e) Renal rickets or renal infantilism.

A brief description of acute glomerulonephritis or the various synonyms given under 1, is as follows:

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The kidney is somewhat enlarged and the glomeruli stand out distinctly as fine red points. Practically all the glomeruli are involved. The tubules are secondarily involved as they are dependant on their blood supply from the glomeruli.

The condition occurs equally in both sexes and is rare in infancy, because infants are less liable to suffer from the conditions likely to cause it. However, when it occurs in infancy, syphilis is the prominent etiologic factor. All recent clinical investigations have gone to show that infections, either of the acute specific nature or from local foci, are the chief cause of nephritis. Cold and exposure, if they play any part, are merely excitants. The infections are chiefly of the streptococcal diseases of the nasopharynx, ear, and upper respiratory passages. Acute tonsillitis, otitis media, and scarlet fever are the outstanding examples. There have been a few cases traced to the pneumococcus, the diphtheria bacillus, and the staphylococcus. In a series of 214 cases collected by Hill and others, there were 66 instances of acute tonsillitis and 25 of scarlet fever, preceding the illness. The form of nephritis known as the focal embolic glomerulonephritis of Loblein must be excluded as the lesion is due to plugging of the capillary loops by emboli from bacterial endocarditis of the streptococcal viridans type. Sepsis, extensive skin lesions, and certain drugs (carbolic) are all causes of a select few of the cases.

The patient is taken acutely ill with malaise, anorexia, fever, and sore throat. He recovers and is up and about, and the mother notices a bloody urine and puffiness about the eyes. Occasionally the onset may be more stormy. Following a period of recovery from an acute infection, the patient complains of headache and visual disturbances. The symptoms continue with vomiting, and suddenly convulsions supervene. Hematuria may or may not be noticed previously. The urine in acute glomerulonephritis is smoky, due to presence of blood. Red blood cells are seen microscopically for days after the gross evidence of the blood has disappeared. All forms of casts, red and white blood corpuscles are also present. The volume of output is decreased at times to the extent of anuria. The dye test may be normal or diminished from 25 to 40 per cent in two hours. Cultures are sterile. Accumulations of nitrogenous products in the blood are found in acute glomerular nephritis.

When edema is present in acute glomerular nephritis, it is of the non-pitting type, and the tissues are tense in contrast to the soft-pitting edema in the tubular form. The brain in both types is increased in size; the brain in tubular nephritis is soft and boggy, while the brain in the glomerular type is tense and hard.

Blood pressure is increased in glomerular and decreased or normal in tubular nephritis. To determine normal blood pressure in children, multiply the age in years by two and add 80.

The cause of the arterial hypertension, according to Marriott, is due to a general capillary constriction, and uremia is due not to renal insufficiency, but to a toxin. Blackfan feels that cerebral symptoms are due to edema of the brain and hypertension is the result. The therapeutic results with magnesium sulphate are brought about by a lessening of the edema, which in turn lowers the pressure. This fact helps to substantiate Blackfan's theory.

Some authors refer to tubular nephritis as nephrosis (Volhaard and Fahr), while others call it parenchymatous nephritis. Nephrosis is perhaps the better term.

The kidney of this variety is large in size, and there is loss of normal striations, presence of edema, and pallor. A degenerative lesion is the characteristic feature. The proximal and distal convoluted tubules are the seat of diffuse lipoid formations. The glomeruli are slightly if at all involved. Slight fibrosis and lymphocytic infiltration may be found in places.

The etiologic factor is difficult to establish. The disease is rare in infancy and relatively common in early childhood. The exact cause is unknown, but evidence has been brought forward to suggest that it may be some toxin of bacterial origin circulating in the blood. Marriott believes it is due to a staphylococcal infection, the seat of which is the middle ear and paranasal sinuses. It is believed that in some cases the toxins of the pneumococci, syphilis, diphtheria, and inorganic poisons may be the cause. Some authors feel that the changes are extra-renal in origin. Alteration of lipoid metabolism was given as the primary factor, or by some general metabolic disturbances of the thyroid gland. Nephrosis should then be considered a general systemic disease.

The onset is quite characteristic, a child who is previously healthy is noticed having a "puffy" appearance about the eyes and to have swollen ankles. During intervals of no edema, the patient appears well and playful, except for a mild secondary anemia. However, when the edema is extreme they may appear drowsy and uncomfortable. Alarming symptoms, such as convulsions and visual disturbances, are rarely seen. Fever may or may not be present. Edema begins in the face and spreads to all of the subcutaneous tissues so that finally the entire body is swollen and the patient presents an appearance of abject misery. Fluid may be found in the thoracic, pericardial, or peritoneal cavities. Often times when an acute infection occurs, the edema lessens to a marked degree. The explanation for this is ascribed to protein shock. High fever has been induced as a form of therapy to get rid of edema.

In tubular nephritis the urine shows: (1) reduction in amount, (2) high specific gravity, (3) albumin in large amounts, (4) urinary protein as serum albumin, (5) poor in chlorides, (6) casts, (7) doubly refractile lipoid bodies, (8) leukocytes, (9) sterile urine and (10) dye tests normal.

The blood findings are: (1) blood protein reduced with a reversal of albumin-globulin fraction, that is, the globulin fraction exceeds the albumin fraction; (2) globulin and fibrigen increased; (3) increase of lipoids of the blood, cholesterol is five times the normal; (4) non-protein nitrogen not increased; (5) sugar at a low level. The blood pressure is low.

The mortality is about fifty per cent. The disease fluctuates and intercurrent infections are very serious and should be viewed with alarm. Strepto and pneumococcus peritonitis are not infrequently seen as complications.

Chronic interstitial nephritis is seen in childhood and is similar to the so-called nephrosclerosis seen in adults. Chronic interstitial nephritis is in reality a descripton of an end-result rather than of a clinical entity. The underlying cause of this condition, therefore, is varied. Children have been born with a nephritis, the so-called intra-uterine nephritis. These little patients get along for a while, then later in childhood develop the classical picture of nephrosclerosis. This is explained, perhaps, by the fact that the damaged kidneys have enough functional tissue left, but as time goes on it is attacked by the circulating toxins and bacteria, which cause a retention of waste products, and finally the syndrome of nephrosclerosis. Then too, the normal kidney may be repeatedly attacked by a streptococcic infection, and eventually pass from the acute to the chronic variety. Alcohol, lead, and other poisons rarely affect the child, so they can be eliminated as a causal agent. Then again, nephrosclerosis is often associated with some congenital defect of the kidneys, such as hydronephrosis, and obstructions in other parts of the genito-urinary tract. Also, calculi may cause enough damage of the kidney to make it vulnerable later to the toxins. Syphilis is often an etiologic factor. Inheritance plays an important role. These patients inherit a predisposition to hypertension and kidney disease of the nephrosclerotic variety. Nephrosclerosis is often associated with bone changes and stunted growth, and is called renal rickets, renal infantilism, and renal dwarfism. By x-ray and histologic study, these changes appear somewhat different from those found in infantile rickets, the shafts of the long bones and the flat bones have greater translucency and a more spongy appearance than is usually seen in ordinary rickets. Mitchell's description of nephrosclerosis is excellent, and I quote directly from him:

"The symptoms and examination of children with nephrosclerosis may be summarized as follows:

"There is no difference in sex incidence; the average age at the onset of symptoms is about seven years, but many patients have symptoms in early infancy; marked retardation of growth is present in almost all patients; mentality may be normal or above the average, but in some patients it is less than the average for age; sexual development is frequently retarded in the patients past the usual age of puberty; polyuria and polydipsia are frequent and early symptoms; anorexia may be a marked symptom; headache and vomiting occur frequently; convulsions, uremic in nature, are sometimes early and often terminal symptoms; tetany is an infrequent symptom; edema, usually slight, is not a frequent symptom; hemorrhagic manifestations may be present; albuminuric retinitis is frequent; anemia is very constant; pigmentation of the skin is not uncommon; circulatory disturbance is surprisingly infrequent; cardiac enlargement is common; sclerosis of the superficial blood vessels may be present; high blood pressure is frequently found when examination is made for it; on examination of the urine low specific gravity and albumin are always found and, less frequently, casts and white and red blood cells; when kidney function tests are made there is usually discovered a marked renal insufficiency; genu valgum is a frequent manifestation in those patients who have bone changes.

"The prognosis of nephrosclerosis in childhood is naturally serious. In a series of approximately two hundred patients under twenty years of age, 50 were alive at the time their cases were reported; of 129 in whom the age at death was given, the average age was nine years and nine and a half months."

The incidence of nephritis, according to Blackfan's series of 46 cases, was found to occur as follows: 24 of the acute glomerular variety; 14 of the acute tubular variety; 5 of the chronic variety, and three of the mixed variety. The incidence is about the same for several other series studied by other men.

The laboratory findings offering the most valuable information are the Addis count, the phenolsulphonephthalein dye test, the urine concentration tests, and blood chemistry.

The sediment counts, according to Addis's technic, are a valuable aid. His counts are made on urine that is collected from individuals whose fluids are restricted for 24 hours. The 12 hour night specimen is measured and if acid in reaction, a measured portion is centrifuged. The sediment is suspended in salt solution and the formed elements are counted in a hemocytometer. In the normal individual Addis found:

| | Range | Average in 12 hours |
|---|---|---|
| Red corpuscles | 0— 425,000 | 65,000 |
| Casts | 0— 4,270 | 1,040 |
| Leukocytes and epithelial cells | 32,400—1,000,000 | 322,550 |
| Protein | 10—30 mg. | |

An increased count indicates some abnormality of the kidneys or urinary tract.

The renal function tests are not so valuable in the diagnosis as in the prognosis of nephritis. Other conditions essentially non-nephritic in nature, such as anhydremia, intestinal obstruction, and febrile states, may cause a temporary loss of the functional capacity of the kidney. All this should be kept in mind when interpreting the results.

The urine concentration test, done according to Hill's modification of Mosenthal's technic is as follows: The child is given a full diet with high protein foods. A capsule containing 15 grains of salt and a tablet of 2 grains of caffein-sodium benzoate is given with each meal. Also 10 ounces of fluid is given with each, but no fluids between meals. The urine is collected every two hours from 7 a. m. to 7 p. m., and the specific gravity of each specimen is recorded. The interpretation is a variation of from 8 to 10 points in the normal. When the variation is from 1 to 2 points, the kidneys may be considered damaged.

The phenolsulphonephthalein test: The technic is the same as in adults, except one-half of the dye is injected either intramuscularly or intravenously. The interpretation of the values are the same as in adults. Following the intramuscular injection, the excretion of 40 to 60 per cent of the dye at the end of the first hour is normal. While following the intravenous route 65 to 85 per cent is considered normal. In the interpretation it must be remembered that 50 per cent of the kidney function may be impaired before diminished dye excretion occurs. Values of 30 to 40 per cent in two hours indicate moderate impairment, while 20 per cent means serious impairment, and less than 10 per cent very serious impairment.

The interpretation of the blood chemistry is important. When the urea nitrogen rises to 30 or 40 mg. per 100 c.c. (normal 12-20) the uric acid to 6 or 8 (normal 1-4), it means moderate impairment of renal function. Values of 80 to 100 for urea nitrogen and uric acid 12 to 15, are indicative of serious damage. Creatinin rising to 4 mg. per 100 c.c. (normal 1 to 2) is a serious prognostic sign and when it rises to 8 to 10 c.c., it is always indicative of fatal outcome. Chlorides increase when edema is present (normal value 500 to 600). In nephrosis, the total lipoids are increased (600 to 700 normal value) also the cholesterol is increased (normal 140 to 170). Both the serum protein and serum albumin fall below normal in nephrosis. The normal values for each one respectively are 7.5 to 8.5 per cent, and 5.5 per cent. The inorganic phosphorus in increased in chronic nephritis. The serum globulin is increased in comparison with the albumin.

### TREATMENT

1. Rest in bed is important during the acute attack, as activity may increase the albuminuria and hematuria. This period may last from four to six weeks, and if by this time the patient is free of hypertension, though not necessarily free of albumin, he may get up. He should be watched and if the symptoms return, he should be put back to bed.

2. Removal of Foci: If diseased tonsils are present, they may be removed during an acute attack, providing the albuminuria and hematuria are decreasing, and that there is no nitrogen retention or hypertension. Lyttle believes that tonsillectomy can sometimes be done from three to eight weeks after onset. If the tonsils are acutely inflamed, the operation should be deferred until this condition is well. Dental caries and sinus disease should likewise be treated.

3. The Diet: Much has been written on this subject, and many diverse views have been held. What is desired, is to give an adequate diet of at least one gram of protein per pound of weight. Formerly protein was contraindicated, but since there is loss of protein in the urine, it must be replaced. The child also needs protein for growth. Of course, during the very acute stages all that the child requires is milk, 1200 to 1600 c.c. If this is not tolerated, offer 5 per cent glucose in orange juice. Either stick candy or dextro-pops may be offered along with fruit juices; later vegetables may be given, and gradually eggs, meat, and bread are added. In the nephrosis variety, high protein diets have benefitted many. Tonics such as the vitamins and iron are given. Other measures such as sunshine and fresh air are beneficial. Some authors have reported beneficial results from diets of low salt and non-acid producing foods. This diet is the Eimer and Voigt low protein and low salt alkaline diet.

In the treatment of edema, sweating is too exhausting and should not be used. The diet should be salt poor (milk has a low salt content). Alkalies (Fisher theory), acid salts (ammonium chloride 60-90 grains daily), calcium chloride, lactate or gluconate (60-90 grains daily), and other diuretics may be tried. Salyrgan in small doses has been tried in edema, but must be used with caution as this mercurial may have damaging effects on the kidney. Acacia, according to the method of Hartman and his co-workers, has been beneficial in some instances, especially in nephrosis with edema. Thyroid medication in large doses has been tried. The dosage should be carried up until the pulse increases in rate and a slight fever results. Hyperpyrexia induction in nephrosis has been tried, and also protein shock (typhoid vaccine), but with varying results. Decapsulation of kidney (Edebohl's operation) has been recommended in the chronic tubular variety, but with doubtful results. It is rarely used today.

During the course of acute hemorrhagic nephritis, the blood pressure may rise and when the pressure mounts to a certain level convulsions ensue. The blood pressure should be taken repeatedly and often by forcing fluids, the blood pressure will fall. The blood pressure is due to the cerebral edema, which in turn causes increased intracranial pressure. The forcing of fluids dilutes the toxins, which are then excreted by the kidneys. The toxin changes the colloids of the brain to a form which will absorb water, thus causing edema, followed by increased arterial and intracranial pressure, and finally leads to convulsions. Fluid restriction, catharsis, and sweating, therefore, are contraindicated. If the blood pressure mounts, in spite of forced fluids, magnesium sulphate 50 per cent, from 1 to 2 ounces by mouth, will often bring about a lowering of the pressure. Magnesium sulphate by mouth in large doses, as Aldrich has brought out, at first causes a catharsis, but later does not have this effect. If the patient is unconscious and convulsions are impending, the magnesium sulphate may be given by intravenous route in a 2 per cent solution (10 c.c. per pound). The sulphate is given in one arm, and in the other the blood pressure is taken. As the pressure falls, clinical improvement follows quickly, characterized by a return of consciousness and cessation of convulsions. This rarely needs to be repeated but once. Usually about 100 to 300 c.c. are required. Following this the sulphate can be given by mouth and then a gradual return made to the diet outlined above. The magnesium sulphate in 50 per cent solution may be given by intramuscular route, usually 2-6 c.c. This method has been shown to work as effectively as the intravenous route, and for obvious reasons is better. Also spinal puncture may help in severe cases. Magnesium sulphate works according to Fisher's theory by causing a shrinkage of the colloids of the brain, which releases the water which is then taken by the blood stream to be excreted in the kidneys.

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## DISCUSSION

Dr. Harris Hosen (Port Arthur, Texas): I want to congratulate Dr. Graubarth on his review of this subject which was interesting and complete in every detail. I am especially interested in the fact that the use of magnesium sulphate intravenously or intramuscularly was stressed in the presence of nephritic coma. It is of great importance to be aware of the advent of coma. Our best clinical sign is the blood pressure. When the blood pressure of a child reaches 120 and over we should be warned of approaching cerebral symptoms. It is at this time that preventive treatment of pending coma should be instituted. The treatment is magnesium sulphate by mouth if conscious, by needle if unconscious. But a note of warning should be stressed in the use of magnesium sulphate when the kidneys are so badly damaged that a state of anuria or near anuria is present. The blood has 1.8 to 2.5 mg. of magnesia to 100 c.c. of serum. When this level reaches 17 mg. a magnesia coma is precipitated. In the presence of severely damaged kidneys it only takes two or three purgative doses of magnesium sulphate to raise the magnesium in the blood to a dangerous level within as short a period as four hours. Sodium sulphate can be used without this danger. In the event of magnesium coma calcium chloride intravenously is supposed to be specific.

Dr. Julian Graubarth (New Orleans): I wish to thank Dr. Hosen for his discussion. I cannot quite agree with all the dangers of magnesium sulphate as pointed out by Dr. Hosen. Magnesium sulphate has been used over a long period of time and any bad effects from its use are so negligible that one should not hesitate to use it. The colloids of the brain are swollen with water, the so-called wet brain. As a result of this swelling the intracranial pressure is increased. This increased intracranial pressure is the cause of the coma and convulsions. By giving magnesium sulphate the colloids of the brain which are loaded with water shrink. This excess water is taken up by the blood stream and later excreted by way of the kidneys. The final result is, therefore, a lowering of the intracranial pressure with a cessation of the convulsions and also a lowering of the blood pressure.

# A COMPARATIVE OBSTETRICAL AND GYNECOLOGICAL STUDY OF THE WHITE AND COLORED RACES*

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To those of us practicing gynecology and obstetrics in the deep South, the negress presents a very interesting problem, and a comparative study of the colored and white races along the lines of the aforementioned specialties brings forth much valuable data. In order to do this survey, we have made use of the yearly reports of the Charity Hospital of Louisiana, and the reports of our Maternity (Out-patient) Service of the Touro Infirmary.

In a limited report such as we present here, we shall not go into detail as regards all gynecological and obstetrical conditions, but only the more common ones which we meet in our daily routine. In the first place, we must recognize that the negro of today, in at least 50 per cent of the cases, is not pure-blooded.

The second fact that we must realize is that the social and moral status of the colored race is lower than that of the white, and that as a result, undernourishment is greater, and venereal disease is more rampant.

## OBSTETRICAL

In a paper by one of us (W. E. Levy) some years ago before the Southern Medical Association, much comparative data was presented, and in bringing the Touro records up to date, we see only a corroboration of the conclusions that were drawn at that time.

It was pointed out that except for the greater prevalence of syphilis among the colored, and the comparative infrequency of birth injuries among them, very little difference exists between the two races obstetrically.

The pelvic measurements of the two races reveal very little difference, and the "standard" pelves of each, show very little variation except in two of the external measurements.

Comparative pelvic measurements of both races: (See table at bottom of page.)

In the Touro Maternity clinic we have not observed the so-called "flat rachitic" pelvis to be more frequent in the colored than in the white. As a matter of fact, we believe rickets is no more prevalent in the colored than in the white, in our section, due to the great amount of sunshine and fresh fruit and green vegetables that are available from childhood. Most reports to the contrary are from Northern clinics, where the negress, so to speak, is removed from her natural environment and lacks food rich in vitamins.

In a personal communication from S. M. Vassalls in Zanzibar, East Africa, he states, "First of all, the contracted pelvis is definitely uncommon, since rickets is a very exceptional disease in the Tropics."

The occurrence of syphilis is indeed much greater in the colored than in the white. At the Charity Hospital, taken as a whole, the incidence is about 5 to 1 in favor of the negress.

In our own out-patient obstetrical clinic at Touro Infirmary, it is 7.8 per cent for the colored, as compared to 1.6 per cent for the whites, or practically the same ratio of 5 to 1. Williams, from the Johns Hopkins Clinic, reported 16.29 per cent and 2.48 per cent, re-

| | Inter-spinous | Inter-cristal | Intertro-chanteric | Baude-locque | D. C. | T. C. |
|---|---|---|---|---|---|---|
| White | 23.4 | 26 | 30.11 | 18.6 | 12.30 | 10.80 |
| Colored | 21.9 | 24.9 | 30.5 | 18.71 | 12.20 | 10.70 |

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

spectively, or a ratio of approximately 6.5 to 1. McCord, however, gives a much higher incidence of syphilis in the negress than either of the above, viz. 30 per cent. This higher incidence of syphilis in the colored race is no doubt the causative factor in the greater number of premature births among them. C. J. Miller, in a studied series of 359 premature births, showed 59 per cent were colored and 41 per cent were white. However, our last yearly report of Touro shows a total number of premature births of 26, of which 16 were white and 10 colored. Of the total deliveries, the incidence was 4.39 per cent for the white and 2.8 per cent for the colored. This apparent discrepancy from the usual, is the result of the early and intensive treatment of Wassermann-positive cases, and is another strong argument for proper pre-natal care.

Spontaneous delivery among the colored race is greater than among the white, our own figures showing an incidence of 93 per cent in the negress and 86 per cent in the white. This compares with the figures given by Riggs of 84 per cent and 80 per cent respectively, and the recent ones of Pride of 95.45 per cent and 92 per cent. C. J. Miller, in a review of abnormal deliveries at the Charity Hospital, showed an incidence of 4.5 per cent for the colored and 11.1 per cent for the whites.

The greater number of normal deliveries among the colored, we attribute to several reasons, chief among them are:

The relative contractions in the negro pelvis are less than in the white. In a large series of measurements of the babies of both races, we found that the negro infants are nearly one pound less in weight than are the whites. Omitting all the prematures of both races, the average weight of the colored infant was 6.88 pounds, or 2939.26 grams, while that of the white infant was 7.43 pounds, or 3280.16 grams. Furthermore, we disagree with Pride as to the inability of the negro head properly to mold, and find that it molds equally as well, or even better than in the white.

In addition to the above, we have made the observation, as have others, that the nervous system of the negress is less sensible to pain, and as a result she stands a longer labor with more stoicism.

As mentioned before, the incidence of birth injuries in the colored woman is markedly less than in the white, and from a study of the postpartal patients, this is borne out. We attribute this to the greater percentage of normal deliveries, and as shown above, to the smaller babies, both as to weight and head circumference. In the section devoted to the gynecological comparisons, we shall present figures which will bear out this contention, by showing that plastic and corrective surgery of the female genitalia are very much greater in the white race.

### GYNECOLOGICAL

From a gynecological standpoint, the difference between the two races is quite marked. The pathology in the colored is much more extensive, due to the greater incidence of gonorrhea, and also to the fact that as a rule they do not apply to the hospital until they are nearly incapacitated by the ravages of disease. Furthermore, an expectant line of treatment cannot be employed with the colored race, either due to their ignorance and refusing such a plan, or their economic status, which does not permit of the above, but requires that they be able to help maintain themselves as soon as possible.

Gynecological admissions at Charity Hospital:

| | White | Colored |
|---|---|---|
| 1926 total | 1336 | 1699 |
| 1927 total | 3678 | 1583 |
| 1928 total | 3239 | 1678 |
| 1929 total | 2673 | 2342 |
| 1930 total | 4442 | 5820 |
| 1931 total | 2320 | 2336 |
| 1932 total | 2386 | 2188 |
| 1933 total | 2899 | 5849 |
| 1934 total | 1568 | 1582 |
| 1935 total | 3930 | 5776 |
| Total for ten years ('26-'36) | 28471 | 30853 |
| Percentage of total | 47.99 | 52.01 |

Pelvic inflammatory disease is rampant in the colored and is much more frequent and severe than in the white. At the Charity Hospital, for the ten years from 1926 to 1935, inclusive, there were a total of 59,324 gynecological admissions, of which 28,471, or 47.99 per cent were white, and 30,853, or 52.01 per cent were colored. During this period the total number of white cases admitted with the diagnosis of chronic salpingitis, acute salpingitis, or pelvic inflammatory disease were 4358 or 15.3 per cent of the total white gynecological admissions. In a like period, with similar diagnosis, there were 8203 or 26.5 per cent of the total colored gynecological admissions. Nearly two-thirds of the total number of cases admitted with pelvic inflammatory disease were negresses. Due to the specificity of the disease, and to its extensiveness due to neglect, complete extirpation of the pelvic organs is nearly always the general rule in the colored woman.

Another condition in which all of us recognize that a difference exists, is in the frequency of fibroids of the uterus. The difference in favor of the colored race is very marked, but no clear reason has been given for this. Vassalls suggests that fibroids are in some way related to the absorption of oestrin and that the ovaries in the tropics are more active. He further states that fibroids are so common, that they are found in practically every abdomen which is opened for any condition whatsoever. Since our American negress is a direct racial descendant of this type of people, heredity may be an important factor in our cases.

For the ten-year period before mentioned, there were 712 white cases operated upon for fibroids of the uterus, and 5109 colored cases. Thus the percentage of the total fibromas was 12.2 per cent for the whites and 87.7 per cent for the colored. Of the total white gynecological admissions, 2:5 per cent were for fibroids. Of the total colored, 16.5 per cent were for fibroids. Really astounding figures. Greene, reporting five hundred laparotomies on the colored women at Grady Hospital in Atlanta, shows an occurrence of fibroids, either uncomplicated or otherwise, of 398, or nearly 80 per cent.

It is when one comes to review the figures of the diagnosis of conditions arising as a result of birth trauma, that another very distinct difference between the two races is noted. During the same ten-year period there were tabulated under these conditions the following:

| | White | Colored |
|---|---|---|
| Lacerations of cervix, old | 1657 | 451 |
| Percentage of lacerations | 78.6 | 21.4 |
| Percentage of total cases | 5.8 | 1.4 |
| Erosion of the cervix | 390 | 61 |
| Percentage of total erosions | 86.5 | 13.5 |
| Percentage of total cases | 1.4 | .198 |
| Displacement posterior | 1033 | 705 |
| Percentage of total displacements | 59.5 | 40.5 |
| Percentage of total cases | 3.6 | 2.3 |
| Prolapse, complete | 249 | 70 |
| Percentage of total prolapse | 78.1 | 21.9 |
| Percentage of total cases | .875 | .227 |
| Endocervicitis | 2165 | 742 |
| Percentage of total endocervicitis | 74.5 | 25.5 |
| Percentage of total cases | 7.6 | 2.4 |
| Lacerations of perineum | 939 | 264 |
| Percentage of total laceration of perineum | 77.22 | 22.78 |
| Percentage of total cases | 3.1 | 0.8 |
| Relaxation of perineum | 387 | 91 |
| Percentage of relaxation of perineum | 80.9 | 19.1 |
| Percentage of total cases | 1.39 | 0.3 |

From the above figures, it can be definitely stated that birth injuries are much less frequent in the colored than in the white, and tend to substantiate the observation made by one of us (W. E. Levy), some years ago, based on the examinations of five hundred colored and five hundred white women in the post-partal clinic of the Touro Out-patient Maternity Department. Miller shows, however, that the incidence of fistulas is more frequent in the colored, due as he says, "To a lack of cleanliness, and in the case of rectal fistulas, to the high incidence of rectal syphilis."

As regards carcinomas of the uterus (all types), from the figures we have obtained from the Charity Hospital records for the years under study, we find the incidence in the two races, for all practical purposes, approximately the same:

| | White | Colored |
|---|---|---|
| Carcinoma of the uterus, all | 1970 | 2168 |
| Percentage of total uterine carcinomas | 47.6 | 52.4 |
| Percentage of total cases | 6.9 | 7.0 |

Very few early carcinomas are seen in either race, due to the type of population from which both are drawn. It is estimated that not over 1 per cent of the total could be classed as operable, according to the classification of Schmitz.

It is in respect to granuloma of the cervix uteri that we gather some astounding figures. This is a condition that has only comparatively recently been diagnosed. Of a total of eighteen cases seen within the last three years at Charity Hospital, sixteen, or 88.9 per cent are in the colored race. In spite of the rarity of this condition, we wish to bring it to your attention, as it must be differentiated from carcinoma of the uterus. This however, can only be done by microscopic section.

In a paper such as we have presented here today, it is at once obvious that we have merely scratched the surface of this very important and interesting study. However, there are some very definite clinical facts based upon such an actual statistical study.

## SUMMARY

1. Except for the Wassermann reaction, and the comparative absence of birth injury to the negress, very little difference exists between the two races obstetrically.

2. One striking lesson learned from the study of post-partal cases, and corroborated by the comparative study of surgery done for birth injuries from the records of Charity Hospital, is that the colored patients suffer much less degree of birth injuries than do the whites, as proved by the preponderance of vaginal repair work among the whites. There were 1326 operations of this type among the whites, as compared to 355 operations among the colored, for the ten year period.

3. That the gynecological abdomen of the colored woman is one that presents either fibroids or pelvic inflammatory disease, or a combination of both, whereas in the majority of the white cases such is not found. Furthermore, as a result of the extensive pathology, it is almost impossible to do conservative gynecology in the average colored abdomen.

4. That the incidence of carcinoma of the uterus (cervix and body) is practically the same in both races.

5. That the comparatively recently diagnosed condition of granuloma of the cervix is predominantly present in the colored race.

## DISCUSSION

Dr. Ben Goldsmith (Lake Charles): The facts and conclusions as presented in the paper are in keeping with the experiences of most of the men in this assembly.

From the obstetrical side, most of us who are doing general practice, particularly in the rural sections, are seldom called in by the negro midwives who handle most of these labor cases. Here, patients turn a deaf ear, and procrastination usually results in a normal spontaneous delivery, whereas with the white patients, where attempts are made to lighten labor by the use of narcotics, sedatives, and so forth, with the pleadings of the husband, the mother and other relatives demanding interference, there is frequently too early instrumentation. This, in part, accounts for the more frequent spontaneous deliveries in the colored race.

In pelvic inflammatory diseases, as seen in the colored race, their aggravated states may be summed up in a phrase used by the authors of this particular paper, and that was the lowered social and moral status of the colored race which results in their frequent infection and re-infection, their lack of treatment, their improper treatment, and their delayed surgery, going on into wide-spread infection throughout the pelvis.

A few other conditions that are seen more commonly in the negro race, such as venereal warts, rectal stricture and urethral stricture are more commonly the result of the prevalence of syphilis and gonorrhea, and the unhygienic care in that particular race.

Dr. A. L. Culpepper (Alexandria): It is a distinct pleasure to have heard this carefully prepared address. It must have entailed a great deal of labor. The authors are to be congratulated. In this paper, you will notice that the incidence of carcinoma is almost the same in the white as in the colored, yet the essayists go on to say that the ratio of cervical injury is a great deal less in the colored. That struck me as being rather important. I wonder if that is explained by the fact that douching and hygiene in the white is considerably more advanced than in the colored. We do feel, I think, that carcinoma of the cervix is produced by laceration and by infection.

I should like to have them elaborate on this, if they will, please.

Dr. E. L. King (New Orleans): Along the lines Dr. Culpepper just mentioned, it has often occurred to me that one possible explanation of the lowered frequency of birth injuries in the colored may be due to the fact that they start their obstetrical life earlier than the whites, as a rule. If they are going to become pregnant and have babies they generally start by the time they are fourteen, fifteen or sixteen years of age, whereas in the whites the obstetrical life is generally begun at a later date.

I think it is a pretty well established fact that young women between fifteen and twenty years of age do not sustain damage to the same extent that older women do when we consider the first pregnancy.

Another thing to be considered is that these are hospital statistics. We know that the members of the colored race are inclined to abstain from hospital treatment, unless they are rather ill. White women will go to the hospital for perineal lacerations and endocervicitis. We know that endocervicitis is not infrequent in the colored. The white race will go to the hospital, whereas the colored race will not worry unless the condition is very pronounced. I believe those two facts will help to explain the discrepancy in these statistics. On Dr. Culpepper's point, it is possible that the colored race have just as many carcinomas of the cervix as the whites, but they do not go to the hospital.

Another point I would like to mention is the comparison of the fetal head in the two races. Would it not be better to take the circumference of the head rather than the occipitofrontal diameter?

Dr. Walter Levy: That was the occipitofrontal circumference.

Dr. E. L. King: I misunderstood that particular point. The frontal diameter in the newborn baby might be quite different at birth from the condition two, three or four days later.

Dr. Walter E. Levy (New Orleans): In answer to Dr. Culpepper, I rather expected that question to come up. For two reasons, I think it can be answered. More white women have postpartum care. Furthermore, nearly every negress at some time in her life has a chronic infection. I think the chronic infection of the cervix accounts for more instances of carcinoma. Birth injuries alone are not the cause of carcinoma of the cervix. I think the chronic irritation of the cervix is sufficient to set the place afire.

In answer to Dr. King, I have a copy of this paper from the Southern Medical Association in Atlanta, in which this statement appears: "The colored woman gives birth to her first baby at an earlier age than does the white." The average age of the colored primipara is nineteen compared to twenty-one years for the white, which rather bears out your observation, as I rudely interrupted you to say, that the circumference of the head of the newly born infant is smaller. It was not a diameter, because a diameter can so readily be distorted by molding and pressure.

Dr. Meyer is our statistician and perhaps he could answer, but I am sure from off-hand observation that we do not see as much infection in the negro as we do in the white. We all know that increased operative incidence will cause an increased infection, even in episiotomy. There was a paper by Peckham in the last issue of Gynecology and Obstetrics which brought that out. Most of the colored deliveries are normal deliveries and not operative. I think that accounts for our low incidence of infection in those women.

# THE SHRUNKEN LUNG*

A. MAYORAL, M. D.
NEW ORLEANS

Within the past few years some unusual and interesting cases of lung shrinkage have been observed by me, some acute, others chronic. Aided by the clinician, bronchoscopist, bacteriologist and pathologist, a definite cause or strongly presumptive evidence of the cause was found in each and every one of these cases. A report of seven of these unusual cases is the subject of this paper.

## CASE REPORTS

Case 1. G. B., a white CCC boy, was admitted to the Hospital on August 26, 1935, with signs and symptoms pointing toward lung pathology. A roentgenogram was made on August 29 which revealed a localized, roughly triangular area of infiltration of the left lung, probably the apex of the lower lobe, thought to be early pneumonia or an infarct. The patient was very ill at this time. A tentative diagnosis of pneumonia was made, and he was placed in an oxygen tent. No other roentgenograms were possible until September 26, 1935. Now the classical signs of atelectasis of the left lower lobe were present, and the diagnosis was changed to atelectasis, lobar, left lower lobe. Because of the duration of the atelectasis, the formation of an abscess was predicted unless the obstruction was removed. A roentgenogram on October 3 showed the shrunken left lower lobe and compensatory expansion of the upper lobe. On October 14 the suspected abscess had developed. By December 17 the lung had re-aerated and the abscess drained, leaving no signs of previous pathology except adhesions at the left costo-phrenic angle.

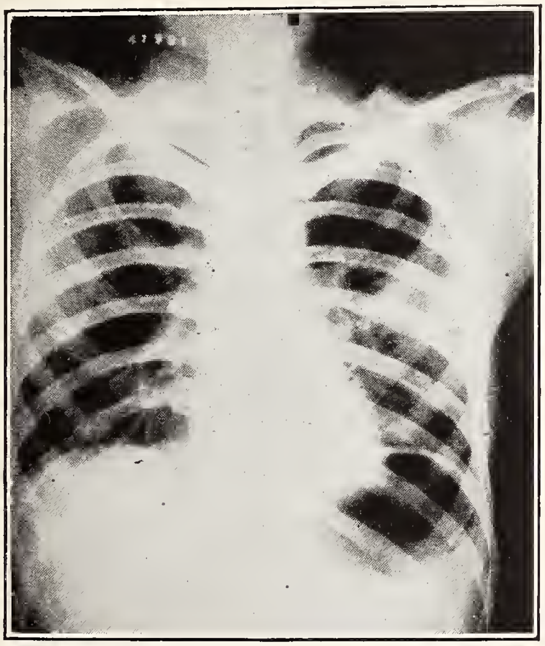
Fig. 1. Case 1. Early lung lesion.

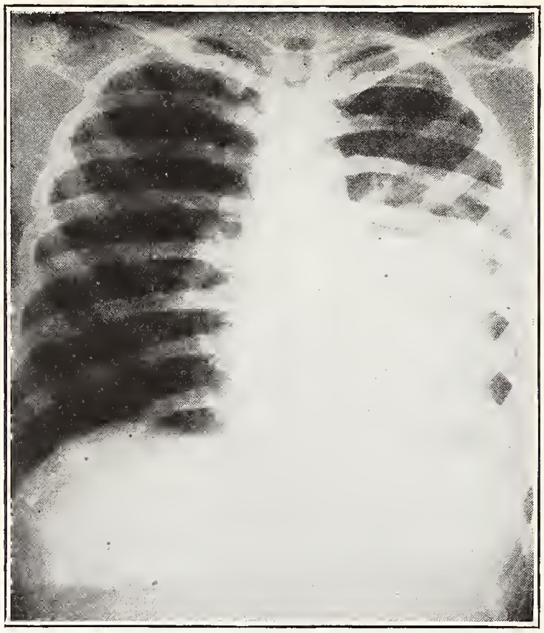
Fig. 2. Case 2. Atelectasis left lower lobe. Abcess predicted at this time.

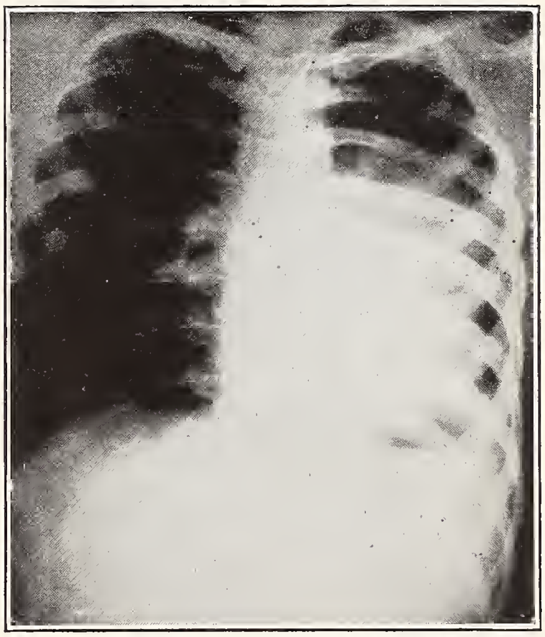
Fig. 3. Case 1. Showing abscess in the shrunken lower left lobe.

Case 2. J. L. H., a young boy, was admitted

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*Read Before the Orleans Parish Medical Society Clinical Meeting at United States Marine Hospital, June 22, 1936.

†From the Department of Radiology, U. S. Marine Hospital, New Orleans and Tulane University.

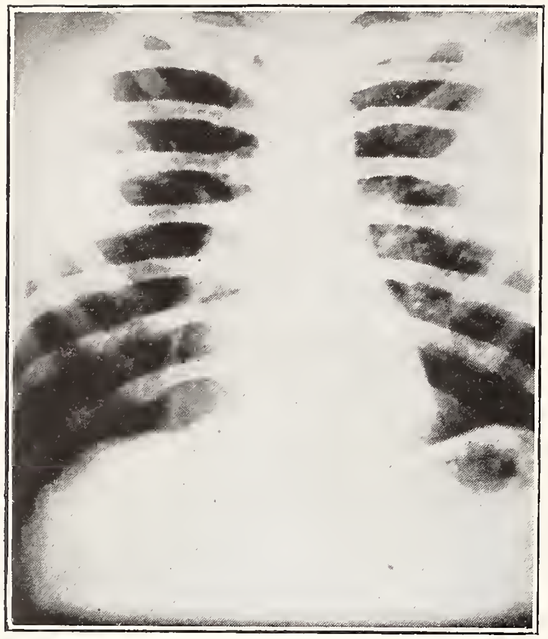

Fig. 4. Case 4. Showing lung re-aerated.

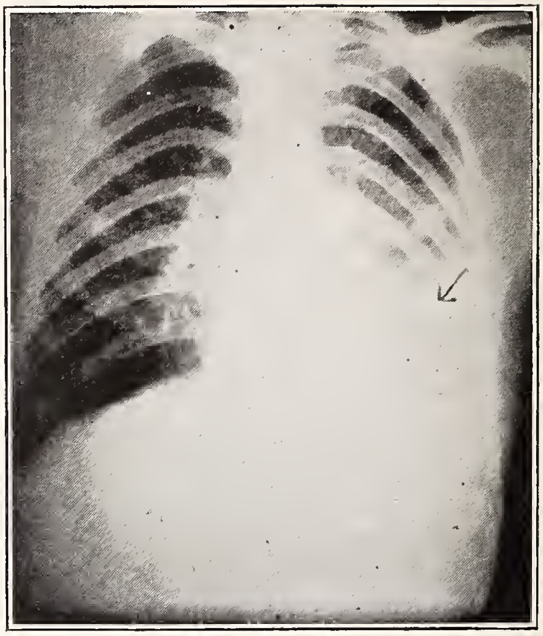

Fig. 6. Case 2. Abscess. (Arrow pointing.)

April 12, 1936 from one of the neighboring CCC camps, with the diagnosis of endocarditis. The boy gave a history of having had influenza a few weeks previously, from which he was slow to recover. The physical examination ruled out endocarditis. Definite physical signs were found at the base of the left lung. A roentgenogram on April 14, 1936 showed the typical signs of shrinkage of the lower half of the left lower lobe. The diagnosis of atelectasis, lobar, incomplete of the lower lobe was made. A roentgenogram ten days later still showed the signs of atelectasis, plus an abscess cavity about the fourth interspace anteriorly. Thirty days later all previous pathology, except the shrinkage, had disappeared.

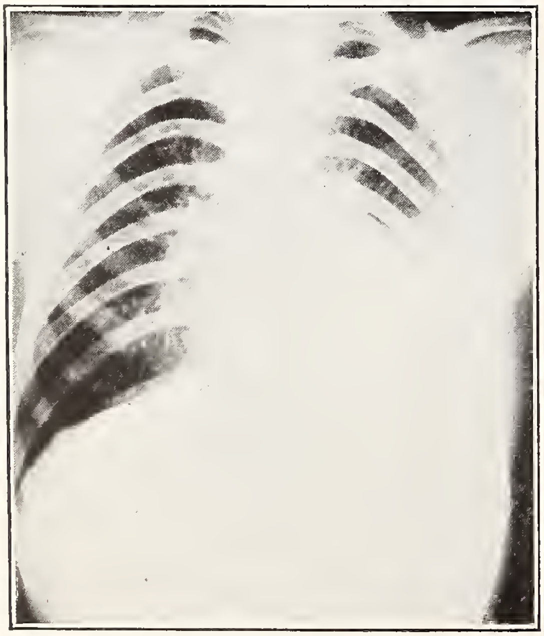

Fig. 4. Case 2. Showing lower half of left lower lobe shrunken.

The preceding are cases of acute, partial or complete lobar atelectasis. The presumptive evidence is that the shrinkage of the lobes followed occlusion of the main bronchus leading to the lobe or portion of the lobe affected, by inflammation of the mucous membrane of the bronchus, a mucus plug, or a combination of both.

These two patients had a stormy time and long convalescence. In both cases solitary abscesses formed within the portion of lung collapsed. When aeration was re-established the abscesses drained, leaving no signs of their previous existence. The lung remained shrunken.

Case 3. M. S., a white male, 40 years of age, was admitted to the hospital June 10, 1935 for inguinal hernia. The history revealed he had developed rupture about a month previous. Since last pneumonia he has had intervals of severe coughing. For past twelve years the patient has done no strenuous work. Roentgen ray on January 11, 1935 showed extensive infiltration of the left lower lobe, retraction of the heart to the left, elevation of the left diaphragm, and intercostal spaces not markedly diminished. Findings reveal lung shrinkage and suggest bronchiectasis. Lipiodol injected May 1, 1936 confirmed the diagnosis of bronchiectasis. A specimen of secretion taken through the bronchoscope yielded a pure culture of what the National Institute of Health at Washington classified as Bacillus alkligenes Bookeri. Diagnosis: Bronchiectatic atelectasis.

The history of two previous pneumonias and the severe cough, remaining after the last pneumonia, are strong evidence of prolonged infection, probably aggravated by the saprophyte, B. alkaligenes, causing collapse of the lung because of inflammatory occlusion of the bronchi. The repeated and persistent cough was responsible for the dilatation of the weakened bronchial wall.

Case 4. A. A., a colored patient, 44 years old, was admitted to the hospital November 11, 1929, with a diagnosis of syphilis. This diagnosis was not confirmed and the patient was discharged eight days later, fit for duty. At this time patient had a dry cough, occasional night sweats and had loss of some weight. He was readmitted on April 22, 1935. His chief complaints then were "Fever in stomach and shortness of breath." Examination at this time was negative except for a slight lag of left chest, increased fremitus of right lung and decreased over the left lower lung, with some dullness. Roentgenogram at this time shows soft infiltration, central zone, left lower lobe, suggestive of pneumonia, possibly bronchiectasis, and pulmonary shrinkage. Further roentgen ray studies after lipiodol confirmed the diagnosis of bronchiectasis. Bronchoscopy again confirmed diagnosis and biopsy revealed bronchiogenic carcinoma. The patient died July 17, 1935. An autopsy confirmed the diagnosis and revealed extensive metastasis. Carcinoma cells had infiltrated the mucous membrane of the main bronchus of the lower lobe causing partial occlusion. The diagnosis is definite: Lung shrinkage due to occlusion.

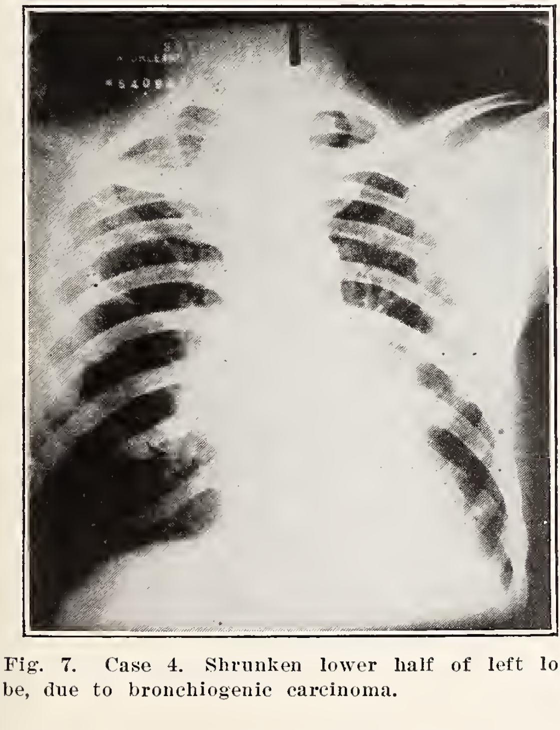

Fig. 7. Case 4. Shrunken lower half of left lower lobe, due to bronchiogenic carcinoma.

Case 5. F. J., a colored boy, aged 25, was admitted from a neighboring CCC camp, with a diagnosis of acute gonococcal urethritis. Routine physical examination revealed marked displacement of the heart to the right and tympany of the right lung suggestive of pneumothorax. The past history was negative, except for pneumonia some years ago. The patient had no other symptoms. Because of the chest findings, roentgenogram was ordered May 5, 1936. Partial shrinkage of the right lower lobe with compensatory expansion of the middle lobe was diagnosed. Bronchoscopic examination showed occlusion of the main bronchus of the right lobe. Biopsy revealed old fibroid tissue. Diagnosis: Partial collapse of the right lower lobe, compensatory emphysema of the middle lobe.

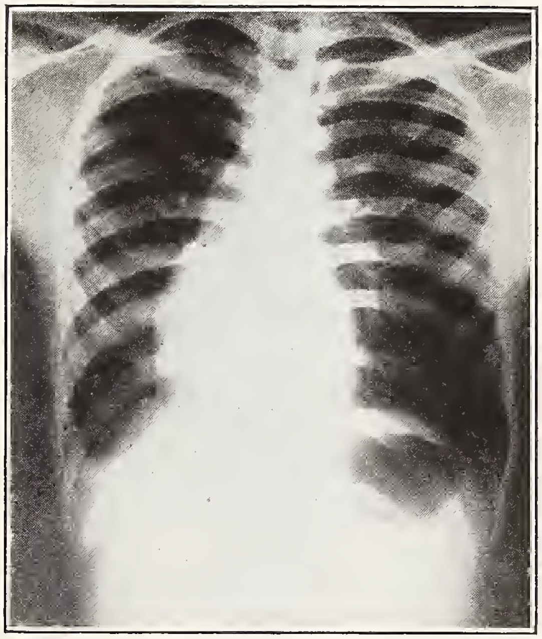

Fig. 8. Case 5. Heart displaced to right because of partially shrunken right lower lobe.

Case 6. J. N., a colored male, aged 42 years, was admitted to the hospital February 4, 1936, for lobar pneumonia of the right lung, complicated with pleurisy with effusion. The patient had a prolonged convalescence. The reason for this prolonged convalescence is explained in the roentgenogram. The first roentgen ray taken at time of admission, showed the complete opacity caused by the pneumonia and pleural effusion. The second made twenty days later and the third one, one and a half months later, showed marked fibrosis of unresolved pneumonia, and unmistakable signs of lung shrinkage. The sputum was repeatedly negative for tuberculosis. This case was one of chronic interstitial pneumonia with definite lung shrinkage following lobar pneumonia.

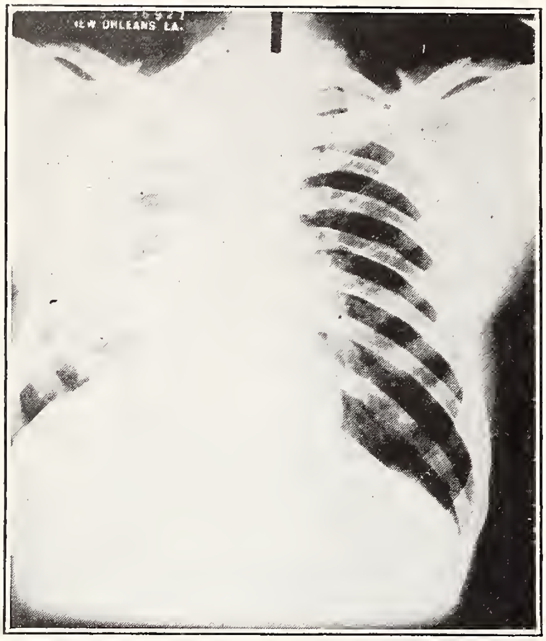

Fig. 9. Case 6. Shrunken right lung because of chronic interstitial pneumonia.

Case 7. L. H. J., a Russian, was admitted to the hospital February 6, 1933 for hemorrhoids, mixed type, cause undetermined. He had a history of having received a bullet wound in the chest in 1913 (20 years ago), the port of entry being at the center of the sternum, and exit behind axilla. The physical examination showed a deformity of the left chest. Auscultation revealed decreased breath sounds and increased resonance of the left lung. Roentgenogram ordered on February 20, 1933, showed a partial shrunken lung with the usual signs of lung collapse and calcification of the pleura extending from the apex to base preventing expansion of this lung. His chest wound was not followed by the stormy and severe symptoms of puncture of the lung. The assumption that the bullet followed the line of one of the ribs from entry to exit seems correct, causing a slow leakage of blood into pleural cavity, followed by organization and calcification. Diagnosis: Compressive atelectasis following hemothorax, sustained by calcified pleura.

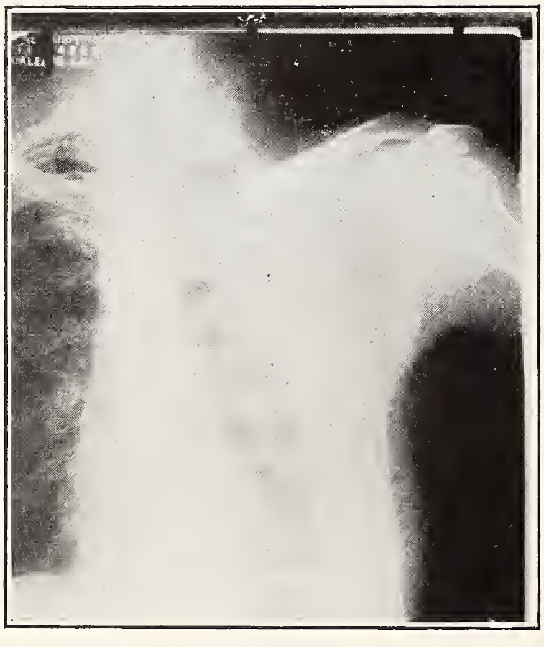

Fig. 10. Case 7. Compression of lung by calcified pleura following hemothorax.

## DIAGNOSIS

If the classical signs (elevation of the diaphragm, displacement of the mediastinum toward the affected side and narrow intercostal spaces) are present, the diagnosis presents no special difficulties, but not always are all these signs present. Inflammatory exudate may have expanded a contracted atelectatic lung before it comes to examination. Then the diagnosis is difficult or impossible until other signs appear.

Pneumonia and pleural effusions can, as a rule, be easily differentiated but a lung compressed by a retracted chest wall and elevated diaphragm, sometimes following acute pleural inflammation, is not so easily differentiated. In such cases the position of the mediastinum will clinch the diagnosis; if displaced toward the affected side atelectasis should be the diagnosis.

## CONCLUSION

This short series suggests the following conclusions: A good roentgenogram of the chest is essential for the diagnosis of lung shrinkage. Lung shrinkage is a symptom or sequela, most cases follow occlusion of the bronchi. The occlusion can be intrinsic or extrinsic. For the lung to remain shrunken after an effusion as the case shown here (hemothorax in this case) is most unusual. (Case 7). Whenever a lung is found shrunken every effort should be made to determine the etiology, as this can be due to a benign, a malignant or inflammatory growth, the prognosis being good or bad accordingly. For a thorough study of the condition the aid of the bronchoscopist is indispensable. A biopsy should be made in every case when possible.

Acute atelectasis cases are often followed by abscess formation if the occlusion is not promptly relieved. In these cases complete healing followed re-aeration and drainage.

The final outcome of obstructive non-malignant atelectasis depends roughly on the length of time the occlusion has existed plus the amount of permanent obstruction. Complete collapse will follow complete obstruction. If the obstruction is removed early, complete expansion will follow with no residual pathology. If not complete and given time to organize, partial shrinkage or emphysema, depending on the amount and type of interference with the tidal air, will be the final outcome.

Lungs compressed because of effusion in the pleural cavity are not considered here. Patients afflicated with tuberculosis have been purposely eliminated.

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# CANCER IN GENERAL; OF THE BREAST IN PARTICULAR*

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The subject of cancer, like that of tuberculosis, has been discussed so much; the social service minded grafters have sold seals and made drives and organized every kind of a Society in the name of these two scourges that could be thought of and that could support one or more secretaries and organizers; in fact, so much has been said and so little done, that the medical profession and the general public also, has become acclimated to the educational campaigns and barrages of propaganda, and have settled down to a passive resistance or active endurance like a tramp regards his sore leg. For this reason, largely, I feel like apologizing when I offer a discussion on cancer.

If you are forty, you have one chance out of eight to have the disease before you die; and if you do not die of heart disease your next best bet will be that your death certificate will name cancer as the cause.

The second great obstacle to progress in the cancer situation is statistics.

If it were only a new disease. If we could forget all that has been said up to about five years ago in regard to the surgical treatment, and all that was said about radiation treatment up to about three years ago, it would be the greatest advance of all time toward a solution.

It is so much easier to send for a can of pickeled statistics than it is to think. You feel so much safer when you can furnish a page of bibliography to back up your presentation, rather than to run the risk of having your reasoning discounted during discussion by reference to what this and that authority had done and said.

A few years ago, I listened to a symposium on cancer in Chicago. The greatest surgeons and specialists in America and of some of the other countries were the speakers. I sat with mouth agape at the great opportunity that was being afforded, until, perhaps the peer of them all remarked that he had seen cancer return after twenty-five years and, strange to say, was in a different part of the body.

I received a shock; my hero had lowered his shield. With my limited knowledge, I had sense enough to know that what he spoke of as a return might and probably was a cancer that had nothing to do with the previous case and would probably have come to this patient even had he never had one before. Like a child who first learns there is no Santa Claus, I became skeptical during the whole afternoon of discussion.

I heard the word "radical" used synonymously with "eradicate," in speaking of operative procedures. I heard radiological statistics covering a period of time back to when the treatment was undoubtedly harmful to most of the cases. At the close, I could but recall the Biblical illustration of pouring new wine into old wine skins. I was not the only one so impressed. Therefore in 1932 when I became Director of a Tumor Clinic, I felt that our greatest obstacles were statistics and precedent, and so they were.

We were fortunate in having the services of a pathologist and a radiologist of outstanding ability. We sent them both to the best Cancer Clinics to study and observe and to forget preconceived ideas if facts justified it. We have sent them every year since.

Our radiologist was and still is, over-enthusiastic; they all are, and they are better for it. The rest of us had rather set ideas, more or less based on some authority who had impressed us sometime somewhere. But time, and more than two thousand cases, has tempered us all. No effort has been made to pioneer or experiment. We are following the most successful methods of the best Clinics, provided the procedure is based on reason and common sense.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

Cancer as an open festering sore, disfiguring and foul smelling, is offensive even to a physician; it is disgusting.

The study of blood was intricate, and its action and functions uninteresting until Metchinkoff likened the blood cells to individuals. People are always interesting. He pictured the white cells as soldiers; each type with a special part to play. Like a flash the phenomena of congestion, inflammation, pus formation and all the rest became comprehensible and interesting.

We apply his graphic reasoning to the fixed cells of the body as well. If the circulation represents the transportation system of the body; and if the blood cells are the freight and express men, soldiers and what not, we would portray the fixed cells of the liver, kidney and muscles as communities of citizens; some engaged in manufacture, some in transformation of power or force, some carrying on the transmission of information from community to community, and still others handling sanitation and sewerage. Thank goodness, we have none in the electric light business: the lightning bug is a jump ahead of us there.

Now, cancer is not a disease as disease is commonly defined. Cancer is normal body cells "gone bolshevik". They are anarchists and become such for the same reasons that ordinary citizens begin to see "red" and later become "red". Just feed any of us too little too long, or rub us the wrong way for long enough time and we become "agin everything"; disobedience to law becomes our joy; we accept sustenance and protection from the community but give nothing in return. The less we work and the more we denounce responsibility the more little bolsheviks we raise; we are now a cancer. Do not ever try to reconvert an anarchist; do not jail some and run others off, for you are planting them in other communities. Destroy the last of them at one time or place them all in jail for life. A well trained armed force might keep them confined to one section for a long time. Just picture your cancer as a society of anarchists, and the subject becomes interesting, the treatment rational.

No longer do you smell decayed human flesh; it is the odor from the bodies of individuals who have died of their own folly; overcrowded and disorganized, their only thought and purpose to eat and breed.

The lymph nodes are the fortifications distributed throughout the body; the analogy is perfect in every detail; and if used as a straight edge to lay alongside your cases before treatment is begun, you will avoid mistakes that you might regret but cannot recall.

No wonder that cancer incidence is increasing, and that the question is already overwhelming. It is the social question of the body cells. Perhaps they need a wise president and a long alphabet; but that leads into politics.

The real purpose of this paper is to apply our bolshevik theory to cancer of the breast. The cells of the mammary gland are highly specialized. A high spirited sensitive community that knows but one trade, and whose activity is controlled by not only supply and demand, and the whimsical and often erratic suggestions from other distant organs of the body, mainly the sexual group, but have the added demoralizing influences of outside sources such as traumatism due to their exposed position, clothing and other unnatural irritations.

There was a time when we walked on all fours and the female breasts were supported evenly by the fibrous septa and trabeculi, and their semi-globular shape was maintained by gravity. Now their position on the chest is maintained by a continual pull on the upper half and a compression on the lower half. While the mammae of lower animals are protected by their position underneath the body, the human mammary glands are as violently exposed to injury as the headlights on a car. It is also true that no other animal manhandles the milk organs as does man. It perhaps does no harm to caress, but undoubtedly mastitis, adenoma or malignancy is quite often produced by inhumanly fondling the breasts.

Then we have the functional irritation; erotic impulses from distant but associated organs, namely the genitals. In fact, the more you think of it the less you marvel at breast disease; you rather begin to wonder that the mammary cells stand so much before rebellion and bolshevism results.

It would be interesting to know how a cancer of the breast begins; in fact, any cancer, for that matter. I cannot conceive of a cancer beginning without irritation of the cells either from internal or external sources; there must be a traumatism of the cells which, instead of being followed by edema and swelling of the cell, takes on this abnormal type of reproduction and uncontrolled activity.

To treat the subject logically, and to treat the patient rationally, we must assume that there was a time when a certain cell or group of cells in the breast became irritated and annoyed, either from poor food and bad living conditions, or from the persistence of someone on the outside who just kept kicking their dog around. In any case, there is a definite beginning; and there are definite steps in the process; just exactly like the case of Bill Jones and a little band of his associates who work in the mills or down in the mines. They are all right one day; but at some definite time, their troubles, whether due to too poor food, long hours, poor pay, or nagging wives, become such that a tendency becomes an activity and they conspire to live their lives in defiance of law and order.

Every community has its sore-headed Bill Jones and his friends, but they seldom go beyond the stage of "cussing" the government. Your body is like that. There are millions of groups of cells in your various organs that are suffering from insults from within and without; these are potential cancers; but fortunately, like Bill Jones and his friends, they may feel sore and complain but are not actually anarchists.

Anarchy and bolshevism are not the products of ignorance, much as we would like to brand them as such. They are the results of a real or imaginary series of wrongs, or a particular wrong many times repeated, affecting a person or persons sensitivity; these persons often are highly intelligent. Indeed the ignorant soon become involved, but they were not the originators.

So true in cancer; and since we are now on cancer of the breast, I remind you again of the high degree of specialization of the mammary cells; they are true intellectuals and highly sensitive. They are not satisfied by mere complaining, they organize and rebel.

We now watch the process. Here is one case that progresses slowly; here is another that is rapid. Here is a small nodule that never appears alarming but the patient dies of widespread dissemination of the malignant cells.

Some show a toxemia, others do not. Anemia may or may not be marked and is difficult to explain. There is a cancer age, but children may and do have cancer of the breast. We had one case of a young woman just twenty; another in an old woman who was one hundred years old. Males have it but rarely.

All races appear equally susceptible. Incidentally, negroes seldom have skin cancer. There must be a reason for their immunity; and I believe that the prevention and cure of cancer may result from the biochemical analysis of the negro's seeming immunity to skin cancer.

The diagnosis of malignant disease of the breast is all important. Here again, worn out statistics and pet ideas and methods strike the ordinary doctor as complicated, and results in a paradox—the more you read and study cancer of the breast, the less able you are to diagnose the condition accurately.

Our growing experience seems to advise that every abnormality of the breast be considered cancer unless you can prove it to be something else.

There is no possible chance of making a reliable diagnosis of cancer of any type or of any part of the body without a biopsy and the services of a competent pathologist. I regret to say there are only a few such pathologists in our country, and the tendency to depend on girl technicians in hospital laboratories is discouraging young physicians from entering this field.

Of course there are certain broad but hazy lines that may be drawn between malignant and benign lesions of the breast by ordinary physical examination taken in conjunction with the history.

We all remember when we were told that

seventy per cent of breast tumors were malignant; the great men of our profession began about that time to deal in vast arrays of statistics, and to consider it a mark of distinction to raise the percentage of malignancy in breast tumors. Finally, it reached ninety-five. Mark Twain was more than a humorist; he must have known something about cancer. He said there were liars and damn liars and statistics. Mind you, in condemning our cancer statistics I am only condemning the source, for statistical information based on reliable sources is, of course, invaluable.

In the diagnosis and treatment of cancer, we must forget that part of the teaching of our heroes that had to do with the big charts and array of figures. They looked good and required but little effort to assemble by the doctor's secretary. But as to real value, they were not only worthless but actually harmful.

A few years ago the American College of Surgeons began to encourage and to give ratings to tumor clinics. This marked the beginning of a reliable source of information on the subject of cancer; not perfect, but far more accurate than before.

From our own twenty-three hundred cases of malignancy, we are beginning to draw some conclusions.

Briefly, we would comment that about one out of every sixteen cancer cases is of the breast and that whites and blacks are about equally affected, and respond to treatment in about the same way.

That about one-third of all breast lesions are not cancer. The negro has a smaller percentage of benign lesions than the whites.

A very few men have cancer of the breast. The age of our breast cancers range from 20 years old to one hundred years old.

Our experience would indicate that the microscopic diagnosis is the foundation for any degree of success in the treatment of cancer of the breast, and that a highly skilled radiologist with adequate equipment is absolutely indispensable. We are now discussing only cancer of the breast, but our reasoning is applicable to other regions of the body.

The surgeon comes third in importance and the more skilled your pathologist and radiologist, the less important is the skill required of the surgeon. All three are indispensable to each other; and that is not all: A medical man must stand between these cancer attackers and the patient's general condition. Just because you have a cancer does not prevent you from having other pathology; none of us would take pride in curing a cancer if we had to kill the patient in the process.

It goes without saying, that various other specialists are needed according to the region affected, but we are now speaking only of cancer of the breast.

Regarding physical diagnosis, much has been said and many procedures advocated and tried; our experience as checked by the pathologist may be briefly stated as follows:

A bleeding nipple is cancer or benign duct papilloma—fifty-fifty in frequency.

A retracted nipple associated with a breast tumor means cancer, but there are exceptions. When the skin of the breast is dimpled, resembling orange peel, associated with a mass in the breast, it means cancer. If the breast tumor is attached to the skin or chest wall, it is cancer with few exceptions.

Breast cancers are practically painless and not tender until they break down and become infected.

A tender painful not well defined thickening in a young woman's breast is a mastitis. A mass in a nursing breast is seldom a cancer.

A tumor in both breasts, or more than one tumor in one breast is practically always benign.

A well defined easily movable tumor in the breast is nearly always benign.

One-third of all breast pathology is non-malignant.

The most frequent benign condition is abscess, which is tender, painful, often red, and associated with fever and occurs nearly always in a nursing breast.

Non-suppurating mastitis occurs in children and young women who are usually precocious and whose breasts are well developed.

Adenoma, fibro-adenoma and cystic adenoma, whicsh are all well defined, movable and not painful or tender are usually found in young adults.

All breast lesions demand immediate and serious consideration. It is nothing short of criminal to tell a woman with a lump in the breast to "never bother it until it bothers you".

### TREATMENT

The benign lesions are treated by incision, simple removal or whatnot; but regardless of the seeming innocence of the condition, the tissues removed should be immediately submitted to the pathologist to make sure your diagnosis was correct and your treatment adequate.

Now, your diagnosis of cancer of the breast is made. How shall we treat? On this one subject books have been written and statistics piled high.

There are three all important questions at this stage: Is the disease still localized in the breast? Has it migrated and been stopped in the lymph glands? Or has it gone to other parts of the body?

There is no known method of deciding these questions definitely. Enlarged glands may or may not be present. If they are present it may mean metastasis or it may mean inflammatory or absorptive reaction. If they are firm or matted together they are cancerous; otherwise, we do not know what they contain.

The roentgen ray will show metastasis in lungs or bones if well advanced; but shows nothing in the early stages.

But a decision must be made; life is now at stake. It is right here that precedent must be thrust aside. At this point statistics of ancient times must be forgotten; we must submit to reason and common sense.

Your patient is a vast country made up of communities of varying activities but dependent upon each other; their work is coordinated and their functions interrelated.

The breast you are called upon to treat is a great manufacturing center; the cells are the workers and are highly specialized and consequently sensitive. Anarchy has developed in a section of the community; it has become serious.

The governing body of the State (the brain) has appealed to you, to combat the menace. You have made your investigation and found the alarm to be justified; a cancer has developed in the breast.

You know there is a line of defense in the axilla; you palpate; Yes, the glands are enlarged; evidently there has been resistence there and the forces have been increased and the fortifications enlarged. The all important question now is, have the bolsheviks tried to travel to other communities and been stopped and interned or imprisoned in the axilla or has the increased gland activity been due to the reaction in the breast? Another question follows quickly: If they have tried to migrate and been imprisoned in the axillary glands, have they all been stopped there or did some escape the guards and have gone beyond?

Here your decision becomes as important as if you were a god. A life is in your hands. You try to sidestep the responsibility by following precedent and statistics: Remember Mark Twain's comment.

Let us be sensible. If we make a mistake in our decision as to whether the cancer cells are in the axillary glands or not, we may be forgiven. But once our decision is made we have no excuse if we use a procedure not dictated by common sense.

We decide the cancer is still localized in the breast and that no cells have been trapped in the axillary glands: Can there be any argument as to what should be done? Simply surround the town and wipe it from the face of the earth; that is, remove the entire breast. This is quite a sacrifice but it is better that one city should go than the whole nation be lost.

Now, if we could subject all the cells of the breast to some trying ordeal; we know the cancer cells or bolsheviks are the weakest and would die first: We might destroy the cancer with perhaps but slight injury to the organ. That is what radiation has tried to do and will some day accomplish. It has not been perfected to that degree yet.

You would remove the glands of the axilla in a case like this? What for? They are Nature's line of defense; and here is where the word "radical" comes in. It is regrettable that this word suggests and sounds like "eradicate". Of course, we want to eradicate the disease, but not destroy our friends and only defenders, the axillary glands. Furthermore, you cannot remove all the axillary glands regardless of your skill; it cannot be done; they cannot all be found.

In a second case: Suppose the axillary glands appear to be involved by metastasis; How shall we proceed with treatment?

First we must make a definite decision: We may be mistaken but we must be definite. So we decide the glands are involved and are cancerous.

In this case we have to go further and make another definite decision: Has the cancer gone beyond the axillary glands to other parts of the body?

Again we may make a wrong decision but it must be definite. The chance for error in these definite decisions is very great and this alone invalidates to a large extent, even our present statistics as regards the efficiency of various methods of treatment.

However, we have decided this second patient has glandular involvement and that the disease has not gone beyond the axilla. Oh! This is a case for "radical" operation. Is it? Or do you mean an eradicating operation; there is a vast difference between the two.

If you mean an eradicating operation in this case, you will remove the entire shoulder along with the breast; also taking along with it the clavicle and all the vessels and nerves to the root of the neck. And unless you can produce this unheard of mutilation by a widespread incision and remove the whole in mass without breaking an infected gland or disrupting the lymph channels leading into the infected glands, then you will not eradicate but scatter the cancer cells to the four winds. There is no such operation as an eradicating procedure for this second case. Simple mammectomy was eradicating in the first case.

In this second type, since the disease cannot be eradicated by surgery from the axilla, we do what appears most rational at this time: Use deep roentgen ray, about one thousand R to the glands and do a simple mammectomy the next day. Two or three months later use roentgen ray again in the same or larger amount.

We use this same method in the first case without glandular involvement because we are never certain as to what is in the glands.

Now, a third case shows metastasis beyond the axillary glands; that case is hopeless. Any treatment is for mental effect.

We use the electrosurgical unit in all cancer of the breast surgery; it may or may not be advantageous; we think it is.

We handle the breast gently; never grasp it with volsella or other crushing instruments; remove it in mass along the fascia of the pectoral muscles but not the muscles.

This method, if our diagnosis is correct, gives one hundred per cent cures in the first group; Why not? It prolongs life and may produce a cure in the second group with gland involvement; and in both cases the mortality from treatment is zero and a normal arm is always preserved.

To be sure, my presentation has been simple, somewhat dogmatic, and purposely devoid of statistics. My real purpose is to raise the question of radical operation for cancer of the breast and condemn it.

The results from simple removal with pre- and post-radiation are convincing, and when our clinic shall have been in operation for five years and issue a full and comprehensive report, it will, in my opinion, convince any unprejudiced mind that our contentions are correct.

# A STUDY OF GAS BACILLUS INFECTION, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN THE NEGRO*

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NEW ORLEANS

Even the most unthinking of surgeons must have been disturbed by the report published in 1932 by W. M. Millar, which showed that the mortality in 607 cases of gas bacillus infection collected in civil practice was 49.7 per cent, more than 1 per cent higher than the mortality for the same condition among the American Expeditionary Forces during the World War.

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†From the Department of Surgery of the School of Medicine of Louisiana State University.

*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

But the shock seems to have been a healthy one. The death rate is still far too high, but it has shown a distinct improvement, especially in recent years. It was 32.4 per cent in the 67 cases reported by Stone and Holsinger in 1934, it was 23.5 per cent in the 17 cases reported by Eliot in 1935, and in the 54 cases we are herewith reporting from the New Orleans Charity Hospital for the seven-year period ending in 1935 it was almost as low, 27.7 per cent.

In the series from Charity Hospital the racial distribution of both the cases and the deaths immediately attracts one's attention. Negroes furnish less than half of the hospital admissions, but 60 per cent of the cases of gas bacillus infection in this series occurred in that race. Even more important, 13 of the 15 deaths occurred in negroes, and the mortality among them, 40.6 per cent, was more than four times as high as the mortality among the white patients, which was 9 per cent. Such discrepancies we explain, as does Boland, by the theory that negroes apparently have a greater susceptibility to gas bacillus infection than white patients have. His studies show the incidence of the condition to be two and a half times greater among the negroes, and it seems clear that statistical studies from institutions in which there is a large negro population should be analyzed from this standpoint before judgment is passed upon them.

Males predominated, as they do in all reported series. The age limits were 7 and 64 years, and almost three-quarters of the total number of patients were under 40 years of age.

Table 1

Exciting Lesions

| | |
|---|---|
| Compound fractures | 17 |
| Gunshot wounds | 16 |
| Crushing injuries | 10 |
| Secondary amputations after primary vascular gangrene | 7 |
| Chronic burn of thigh | 1 |
| Tooth extraction | 1 |
| Infected finger | 1 |
| Nail puncture foot | 1 |

As table 1 shows the proportion of exciting causes is about what one would expect, with compound fractures, gunshot wounds and crushing injuries accounting for most cases. In this particular series there happens to be no instance of infection by way of a hypodermic needle, but I have observed such cases, and I was impressed in surveying the literature with the number of writers who call attention to this mode of transmission. Probably 50 such cases are now on record, and it is clearly evident that immersion in 95 per cent alcohol, which is a rather common practice, is inadequate and that some more rigid sterilization of such equipment should be adopted.

The earliest constant sign in this series was the rather sudden development of very severe pain, or the rather sudden exaggeration of preexistent pain, accompanied by local swelling and a sense of distention in the wound. Very frequently, as other writers have also noted, the patients asked that their dressings be loosened. After the onset of pain the whole picture of gas bacillus infection is always a sort of study in disproportion. The pulse rate is at first high in proportion to the degree of pyrexia, and later both the pulse rate and the temperature are increased out of all proportion to the local reaction. The pain is out of all proportion to the size and type of the wound. The constitutional reaction, particularly the shock and the profound toxemia, are out of all proportion to the local manifestations. In short, the textbook picture of gas bacillus infection, which stresses the characteristic khaki color, the crepitation, the typical sero-sanguineous discharge with gas bubbles, and similar findings, is a late and not an early picture.

Indeed, there are worse methods of diagnosing the condition than Ashhurst's. During the late War, when the American ambulances were so crowded that patients had to wait their turn for attention, it was his custom to wander up and down the corridor during his spare moments and actually smell the patients. Those who had a mouselike odor, or, who, as others put it, smelled like rotten meat, were given precedence of all other wounded, for the urgency of their state was realized. It was a crude method, and the finding is not entirely constant, but it undoubtedly saved many lives.

Six patients, of whom four died, entered the hospital with the gas bacillus infection already developed, and in seven others the data were not sufficient to determine the time of onset. In the remaining cases the mortality for the 48 hour incubation period was 29.2 per cent, which is almost twice as high as the 15 per cent mortality for a longer incubation period, in this condition, just as in tetanus, the infection being the more virulent and the more fatal the shorter the incubation period. In a few cases of the fulminating variety, the infection developed and the fatal termination ensued within 48 hours.

Since the B. Welchii, the most usual strain of infecting organism, is anaerobic and feeds upon devitalized muscle, the basis of treatment would seem to be the removal of the pabulum upon which it feeds, and the introduction of oxygen, in the presence of which it must die. The first principle of treatment, then, is clearly a matter of prophylaxis. Whenever débridement, or the removal of devitalized tissue, is the routine treatment of lacerated and contused wounds, gunshot injuries and similar traumatic states, the incidence of gas bacillus infection will be reduced to a minimum. It did not develop in a single one, for instance, of the 236 compound fractures treated by this method and reported by Daland from the Massachusetts General Hospital. The difficulty is here, just as in tetanus, that the significance of a small injury is not always realized, while often the wound is so slight that extensive débridement seems a remedy worse than the disease. It is perhaps too much, therefore, to say that all wounds should be treated by extensive débridement. It is not too much to say, however, as Carothers suggests, that the circumstances of all such injuries should be carefully inquired into, and that precautions should be taken when they seem warranted. Like all infections, gas bacillus infection begins locally, and it should be controlled locally before it gets a head start.

Table 2

Mortality in Relation to Surgical Procedures*

| | Cases | Deaths | Per Cent |
|---|---|---|---|
| Amputation | 31 | 9 | 28.3 |
| Incision and drainage | 13 | 4 | 30.3 |
| Débridement | 10 | 1 | 10.0 |

*One patient died without treatment.

When once it has developed, what to do is another matter. On the surface, as table 2 shows, débridement would seem to have the best of the argument, though it is only fair to point out that frequently, when amputation is resorted to, it is because the condition is so extensive that the surgeon has little choice of procedure. Perhaps some of the patients who succumbed to amputation would have recovered with a less drastic operation. Perhaps some unnecessary amputations were done. There can be no rule of thumb, and such points cannot be determined merely by a study of records. The important thing to remember is that, whatever the procedure may be, halfway measures have no place in the treatment of this condition. If amputation be done, it must be well above the involved area. If incision and drainage be done, the incisions must be multiple and the drainage adequate for the discharge of the toxic secretion and the introduction of air. If débridement be chosen, it must be continued until healthy muscle is reached, as evidenced by color, free bleeding and contractility.

The so-called clean cases in which gas bacillus infection develops after amputation for nontraumatic states have recently received considerable attention, as they very properly should, for the mortality is appalling. It was 72.2 per cent in the 18 cases collected by Orr, and it was 100 per cent in this particular series. Quite characteristically, we migh add, six of the seven patients were negroes.

This question was studied very carefully by the New York Hospital for Joint Diseases and the findings of their committee are worthy of careful note. They are disinclined to accept as a cause either a break in technic or the use of contaminated suture material, though the latter was operative in 10 such cases reported by Eliason in 1933. They are disposed, on the other hand, to accept inadequate preparation of the parts, on the basis that the B. Welchii is a normal inhabitant of the human colon and can very easily be deposited about the operative site from the stool, especially in persons of uncleanly habit. This seems to us a particularly valid contention in negroes, whose unhygienic habits are notorious and who, in Charity Hospital, are huddled together in hopelessly overcrowded wards.

Another quite reasonable supposition, supported by my own positive findings in 90 per cent of such cases studied, is that the organisms find a site of predilection in poorly oxygenated tissues, as are all tissues in which the vascular supply is inadequate. They are resident on the skin and in the lymphatics in a large proportion of all cases of moist gangrene, whether diabetic or arteriosclerotic, and it is surprising, in my opinion, that they do not become activated even more frequently than they do.

I was not able to corroborate Manson's finding of the gas bacillus in my studies of varicose ulcers, perhaps because the ulceration in all my cases was superficial, but his results cannot be ignored. Stirred to his investigation by the development of fatal infection in two patients following the injection of varicose veins, he identified the organism in more than 34 per cent of his cases of chronic leg ulcers, while he could find it in the same region in only 7.6 per cent of normal patients. But the fact that that portion of supposedly normal patients harbor such an organism is very illuminating. Certainly it explains, at least in part, the high incidence of the infection in negroes, whose skin is frequently very unclean, and it shows, too, that it is always a possibility when the skin is broken, even without contamination by the soil, by wool, as pointed out by Gage, or by similar agents.

In view of the findings just mentioned, the prophylaxis of gas bacillus infection would seem to lie in the hyper-aseptic preparation for amputation which is advocated and practised in the New York Hospital for Joint Diseases. It is detailed and time-consuming, it is true, but against that disadvantage must be set its obvious effectiveness in cases in which gas bacillus infection is a possibility, and its employment is clearly warranted.

From the standpoint of treatment, in such cases, radical procedures, as this series shows, are of no value: re-amputation carried a mortality of exactly 100 per cent. Eliason's idea, that high amputation should be practised primarily, I am opposed to; the mortality is inevitably high, and the procedure is often unnecessarily mutilating, though I must grant that the Committee from the New York Hospital for Joint Diseases is disposed to share his opinion. My suggestion is a trial of more conservative measures, such as multiple deep incisions; I feel that nothing could be lost by such a plan, and propose to practise it, in combination with therapeutic doses of mixed antitoxin, when next I am faced with this problem.

There is still no uniformity of opinion concerning the value of the antitoxin treatment of gas bacillus infection, perhaps because the number of reported cases in which it has been used is still very small. I feel that it is of undoubted value and the figures in this series (table 3) bear this out.

Table 3

Mortality in Relation to the Use of Antitoxin

| | Cases | Deaths | Per Cent |
|---|---|---|---|
| No prophylactic dose | 27 | 13 | 48.1 |
| Prophylactic dose | 27 | 2 | 7.4 |
| No prophylactic or therapeutic dose | 5 | 4 | 80.0 |
| Prophylactic or therapeutic dose | 49 | 10 | 20.4 |

These figures may be analyzed from various points of view. Twenty-five patients, for instance, of the 39 who survived, had received prophylactic antitoxin, against only two of the 15 who died. To express it another way, there were two deaths among the 27 patients who had received the prophylactic antitoxin, a mortality of 7.4 per cent, while there were 13 deaths among the 27 who did not receive it, a mortality of 48.1 per cent. Furthermore, in the group of 10 patients treated by débridement, all of whom received prophylactic antitoxin, there was only one death, and this patient was almost moribund when he was first seen.

To continue the analysis from still another angle, there were four deaths among the five patients who did not receive therapeutic antitoxin, a mortality of 80 per cent, while there were only 10 deaths among the 49 patients who did receive it, a mortality of 20.4 per cent. In the latter group there were included one patient who was moribund on admission and two others who died of pneumonia 9 and 10 days after admission, with their infection fully controlled. Such deaths are included in the mortality, of course, but can scarcely be charged against the method of treatment.

An analysis of this sort naturally does not show the other side of the picture, the numerous cases in which prophylactic antitoxin was given and in which gas bacillus infection did not develop, though all the crcumstances were favorable for its growth. Such results would seem to warrant routine administration of the antitoxin in all suspicious cases, as tetanus antitoxin is used. It must be granted that it is expensive, and whether the expense would be too great for its routine use is a matter that hospital authorities must decide. Of its effectiveness as a prophylactic, however, there can be no doubt, just as its therapeutic value seems equally beyond doubt. It is not a measure that should supersede surgery, but certainly it is one that should complement it. My opinion is that in the prophylactic and therapeutic use of antitoxin, combined with the surgical measures indicated in the individual case, lies the solution of the problem of the shocking mortality which hitherto has seemed inseparable from gas bacillus infection.

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### DISCUSSION

Dr. Guy A. Caldwell (Shreveport): I think this is a tremendously important subject. We had occasion to review the deaths from gas gangrene in the Charity Hospital at Shreveport this spring, the deaths that occurred in the past two years, and the cases of gas gangrene that recovered.

It is a difficult matter to approach this subject and try to determine the efficacy of serum or antitoxin. I think we have to be a little bit guarded in the attitude we take toward it, because the surgical treatment still remains the basic treatment. As the doctor said, the use of the antitoxin cannot supersede surgery. Unquestionably, enough statistics have been submitted, and his own statistics here show that it is a valuable adjunct, and yet we cannot feel that the giving of the antitoxin is anything like as effective in gas gangrene as tetanus antitoxin is in tetanus. I think all figures concerning the efficacy of the antitoxin must be coupled and considered with what surgical measures were done.

When we say a débridement is done, we have not told the whole story. There are débridements and débridements. Then some seem to have the idea that a débridement can be done where you expect or anticipate gas gangrene, and close the wound.

In our group of cases it was very definitely shown that every case that had a débridement followed by a closure, whether or not it had prophylactic antitoxin, developed gas gangrene and subsequently had to be amputated, and several of them were lost. So the thoroughness with which the débridement is done and, above all, whether or not it is left wide open is, to my mind, the controlling and first factor in the situation. Unquestionably, it is of value again to use the antitoxin in conjunction with it.

With regard to the development of gas gangrene in elective amputations, several of those cases occurred in our hospital and I did not tabulate those. I thought perhaps it would be confusing to put it in the same group. Personally, I have the feeling that the reason it develops is not because of improper technic. I happen to know that several of these cases that did develop gas gangrene were very carefully prepared and were very carefully done. But I do believe that the infective organism is present in the lymphatics and that sufficient trauma is done to the muscle to create the medium, one which grows at the amputation site, and invariably these stumps will close. A cigaret drain or rubber tissue drain is no drain at all for gas gangrene, and they will invariably close and a number of them develop gas gangrene. I have the feeling that we should treat most of those chronic ulcer cases, and particularly those with deficient circulation, as we would a case that had a compound fracture with dirt and contamination, namely a guillotine amputation modified perhaps by making the bones considerably shorter and leaving it open. I have done that on my service in several cases, and surprisingly close to wound in a diabetic case, and got away with it perfectly well.

I do think we must take another slant on the question of amputation in such cases as that and look on them as potential gas gangrene cases, and treat them as such by using perhaps the more radical amputation.

Dr. A. S. Hamilton (New Orleans): Dr. Veal has emphasized the racial and sexual distribution in the incidence of gas bacillus infection. There is another point in the etiology that I think should also be emphasized, and that is the geographical distribution.

We have found that the vast majority of our cases of gas bacillus infection are cases which come from the country. They are compound fractures which are sustained on the open road or in barnyards, where we might expect to see a large number of the B. Welchii. In the city, on the other hand, we rarely see a case of gas bacillus infection following compound fracture whether they have had prophylactic serum or not.

Another point that I think should be emphasized is the tissue on which the gas bacillus grows. When we are doing the débridement we do not worry so much about the skin, we do not worry about the subcutaneous tissue, we do not worry about the bone; our débridement must be particularly concerned with the muscle tissue, and all the muscle tissue which is relatively avascular and non-contractile must be excised.

Dr. Isidore Cohn (New Orleans): There is one point I should like to stress in connection with Dr. Veal's paper and that is the necessity for prophylactic use of the serum. Everybody is satisfied that they should use prophylactic anti-tetanic serum, and yet when we talk to the same group about using the combined serum they will do what Dr. Veal said just now, discuss the question of expense. Expense should be absolutely no item when a life is at stake, and if its costs fifty cents or a dollar more to give the serum, that is not very much if you save that life with that dollar. If life is that cheap, it is not worth anything at all. If a prophylactic serum is of any value, the time to give it is immediately. Do not wait.

Dr. Veal mentioned the series from the Massachusetts General. You will find a good many men who say they have had no cases. I found that same thing in a meeting of the Fracture Committee of the American College of Surgeons a few years ago, when I tried to get the group to advocate the use of the prophylactic combined serum, gas-tetanus instead of just the straight tetanus. The men in the large industrial centers said they never see it. For instance, Sherman in Pittsburgh said that they do not have gas infections in coal mines. It is true that we find more of it in agricultural districts than we do in large industrial centers. I believe it should be a routine that wherever anyone thinks tetanus serum is indicated that gas-tetanus serum should be used.

Moreover, I believe, as Dr. Caldwell and Dr. Veal have emphasized that it is important that these wounds should be débrided and should be left open. If we believe that anaerobic conditions are favorable for these organisms, and that they live on dead and dying tissue; we can most effectively combat their growth by leaving the wound open.

Another thing that I think is important if you are going to do débridement, see that it is done adequately. If you are going to do anything, make incisions and excise all the muscle which shows evidence of involvement. The only way you can tell that is not only by the color and by the odor, but by the fact that the muscle either contracts or does not contract. An ordinary artery forceps pinching the muscle will tell you whether it contracts or not.

I believe, further, that the use of serum in a curative way has a definite value, but if one uses it he has to realize that it has to be given extremely slowly and must be given at body temperature.

Dr. Veal's statistics are extremely interesting and valuable, showing exactly what can be done in competent hands and where a man is particularly interested in the subject. Dr. Veal's work has been tremendously important in encouraging men to do better work along those lines.

Dr. J. Ross Veal (New Orleans): I am gratified to note that the whole trend of this discussion has been toward the prevention and early treatment of gas bacillus infection. Those were the main points which I wished to bring out in my paper.

It should be emphasized once more that this type of infection begins locally and should be treated at this stage. If the organisms are controlled when they are first implanted in the tissues, before they have time to develop, the mortality of gas bacillus infection will be very low. Toxemia is the chief cause of death, and it can be prevented by prompt treatment.

# THE TRANSFUSING OF BLOOD

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Although the use of blood transfusions is finding an ever widening field in almost all branches of medicine, many are still very reticient about taking advantage of what is probably the greatest addition to our therapeutic armamentarium.

Many references are made to transfusion of blood in the writings of "those mighty masters of antiquity who first discovered the principles of things." The Egyptians are believed to have limited its use to the healing of their princes. Transfusion was acclaimed with enthusiasm by many three hundred years ago. Physicians, poets and philosophers considered it an infallible means of overcoming what a certain grim humor has called "that terrible disease, extreme old age," and believed then to be the long sought "fountain of youth" or means of regeneration.

The decline of this enthusiasm naturally followed after the death of Pope Innocent VIII and three youths used as donors in an attempt by a Jewish physician to rejuvenate the aged Pope by their blood. It is believed that the blood was given by mouth.

Following Harvey's description of the circulation more successful efforts were made to perform transfusions, and Richard Lower, in 1666, is credited with having given the first authenticated successful transfusion to animals. The first known successful intravenous injections in man were made by J. D. Major in 1664, and he was probably the first to give successful blood transfusions to man, for he is known to have transfused his former teacher Dr. Michaelis, of Leipzig, in 1666. J. Denis, Doctor in Medicine, Professor of Philosophy and Mathematics, in 1667, described his transfusing a 17 year old youth suffering with a fever of two months duration; nine ounces of arterial blood from a sheep "restoring him from a moribund state, aftdr having had twenty venesections previously, with entire and almost immediate success."

Thus Dr. Denis describes two other successful transfusions. The first successful transfusion in man given in England was by Richard Lower and Edmond King, who transfused more than nine ounces of sheep blood into the vein of a man who, "after the operation, as in it, found himslf very well."

The Edict of Chatelet, 1668, forbade transfusion of man following a church medicine controversy at which some bad results were reported. No worthwhile work was done following this until Blundell in 1818 demonstrated its practicability and gave it prominence in his obstetrics book as a restorative measure in puerperal hemorrhage. He demonstrated successfully a syringe method and the life saving efficacy of small transfusions of blood comparable to the amount of blood lost.

The multitude of more recent works and workers are less interesting yet better known and of the greatest importance in presenting to the practicing physician of our day the several practical ways of administering this nearest approach to a panacea. Shattuck, Brewer, Leggett, Carrell, Crile, Unger, Kimpton and Brown are names that stand out prominently in this endeavor.

Far from the vein to vein, or vein, canula, vein procedures, very intricate mechanisms were evolved. These were very difficult to operate, but with step by step improvement very simple, easy to operate apparatus are now available.

There were two other problems that necessarily had to be solved before transfusing of blood could be accepted as a safe therapeutic measure. Shattuck in 1899 recognized the presence of iso-agglutinins in the blood; Landsteiner showed that they existed independent of health or disease and followed definite laws. This explained why some transfusions were given with no reactions and others with mild to fatal reactions immediately following. He reported the groupings which Jansky and Moss confused by not numbering their groups in the same way.

Blood matching or typing as well as the cleansing and sterilizing of all apparatus have received much attention from many able and now famous workers. These, also, have been mastered to the point of simplification and have been relegated as stereotyped procedures to the realm of technicians and nurses in the larger institutions. However this work is not fool proof as will be noted upon investigation of the records on transfusions given in the large hospitals. They should be rigidly supervised to avoid any untoward results bearing the taint of carelessness or lack or skill.

Among most practicioners there is an apparent lack of appreciation for the great number of indications for this life saving measure or a failure to realize the facility of mastering, despite its essential exactness, the entire procedure. In the hospital we are prone to use it only when in dire need or as a last resort and therefore often too late; while in many cases, never hospitalized for one reason or the other, and treated in the home, a few hundred c.c. of transfused blood would be a life saving measure when nothing else could be of any avail. Indications for blood transfusions are well discussed by J. D. Hamer and F. H. Chafee.

We are not urging those not versed in the technical points to attempt the procedure, in fact this is strongly advised against. The entire technic can readily be mastered. However, each detail should be learned under supervision and by demonstrations.

Brines states that, "inserting the needles is the most difficult part of the procedure," yet there is much of the greatest importance that precedes this. The great value of a rigid exact technic is shown by a comparison of post-transfusion reactions in two hospitals. Lewisohn reduced the number of post-transfusion reactions at Mount Sinai Hospital from 23.9 per cent to 0.7 per cent by changing the method of cleansing and sterilizing the apparatus used. De Bakey reports only one mild reaction in 500 transfusions in a hospital using student nurses and student technicians.

We will summarize a few helpful points that we have gleaned from the literature and experience.

### SUMMARY

In urgent cases there is no need of determining agglutination of donor's serum on repicient's cells as there is such dilution when given that little or no reaction follows.

A white cell diluting pipette drawn to 0.5 with blood and using .02 per cent citrated saline solution as diluent furnishes an ideal cell suspension.

The cuff of a sphygmomanometer serves as an excellent tourniquet for the donor, more especially so because a definite pressure may be maintained. Keeping the pressure at 50 m.m. mercury holds it well above venous pressure of 30 and well below arterial pressure.

Cold agglutinins, a normal phenomenon, noted at low pressures and pseudoagglutination recognized microscopically by rouleau or clump formation may cause one to discard a compatible donor.

The concavity of ground glass slides allows a quicker, neater test for agglutination than does the usual vaseline mount. Cover glasses are necessary to prevent drying out during thirty minutes observation.

A certain way of cleaning new or used apparatus is to separate all parts and wash with tap water. They are then washed in a dilute solution of green soap to which compound solution of creosol has been added to make up about a 1 per cent solution; pull a small brush through all openings and tubing. Now boil both metal glass and rubber parts in 0.1 per cent sodium hydroxide solution for four minutes, remove sodium hydroxide with tap water, wash all parts well with triple distilled water. Assemble and sterilize in special bundles in the autoclave.

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## POST GRADUATE MEDICAL ASSEMBLY

Last month's number of the New Orleans Medical and Surgical Journal published a detailed program for the coming meeting of the New Orleans Graduate Medical Assembly which will be held March 8-11. A perusal of this program will indicate to the reader that the opportunity will be afforded of hearing outstanding men in their specialty. It is not often that a chance is given to hear in one day speakers and physicians of the caliber of John A. Kolmer, G. G. Ward, G. M. Piersol, L. J. Pollock and H. J. Stander and Hugh Trout, to pick at random the program for one day. The other day programs are equally characterized by the presence of a group of magnificent clinicians and specialists. In addition to the scientific program it must not be forgotten that the annual spring fiesta is to be held in New Orleans at this same time. This should be a big attraction for the wives who may come with their husbands. The entertainments that are going to be held do not appear on the official program but they promise to be many and to be interesting. Altogether a well rounded four days of social and medical activity can be promised for the attendance of this, the first of what is hoped to be many subsequent similar gatherings.

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## AMERICAN MEDICAL ASSOCIATION DIRECTORY

One of the most important undertakings of the American Medical Association is the issuing every two years of a directory of the physicians of the United States, of the dependencies of the United States, of Canada as well as for the first time this year a list of American physicians in foreign countries. With each man's name is stated very briefly the important details of his age, school and date of graduation, his specialty, societies to which he belongs and other relevant data. In this way more than 185,000 doctors are adequately catalogued. In addition to this material which makes up the bulk of the volume there is a part which deals with national and inter-state information, with such important matters as a list of recognized medical schools and their history; examining boards and medical libraries and journals; officers of the medical services of the Government, of medical societies, and so on. The physicians in the third section of the book are arranged alphabetically, so if their location is not known, they may readily be located. Lastly there is a list of physicians who cannot be found. The small size of this last list shows definitely that the directory was made possible by the cooperation of the great majority of the doctors in this country.

All in all this fourteenth edition of the A.

M. A. directory reflects credit on the American Medical Association. It is a volume of inestimable value and while the continued use of the directory might not be necessary for the great number of practitioners, nevertheless nearly every doctor needs it from time to time and has to refer to it. To the doctor who has to refer to the directory many times, it is absolutely essential that it be in his office.

## STUDIES OF HEART DISEASE MORTALITY

A very pertinent analysis of the accuracy of deaths ascribed to heart disease occurring in Washington, D. C. during 1932, has appeared from the pen of O. F. Hedley.* The author first discusses the inadequacy of the official method of recording heart disease in the light of modern clinical concept of disorders of this organ. Nowadays it is customary to make a complete diagnosis of a heart condition which is present in a man suffering from this type of disease. It is conceded that the first and most important fact is the etiologic diagnosis. The anatomic diagnosis then follows and, for the living, functional diagnosis is further added. There is no possibility, under present conditions, of recording deaths from heart disease according to the fundamental cause. The same statement applies often to diseases of the blood vessels. Thus syphilitic heart disease or syphilis of the aorta cannot be listed because syphilis will be assayed as the cause of death and no record will be made of the fundamentally important heart and vascular condition.

Another marked discrepancy in diagnosis on death certificates has to do with frequency with which it is perfectly obvious, judging from the records, that the patient did not die of heart disease. Of course it may be conceded that the patient did die because the heart stopped, but that is no reason for certifying death as being due to such a condition as myocarditis or myocardial degeneration as are nearly 50 per cent of heart disease patients listed when they die. Myocarditis is a vague, indefinite, improper term. In the majority of instances it is dependent upon change in the vascular system of the heart. Hedley found that apparently when a cause of death could not be definitely determined heart disease was the diagnosis, and he substantiates this observation in his study of a relatively few death certificates, by listing 71 deaths ascribed to heart disease and so reported but which were due to other conditions as proved by autopsy in approximately half the cases.

As result of certifying heart disease as a cause of death merely because it is a convenient term, a tremendous number of deaths are improperly and imperfectly reported, but on the other hand there are a considerable number of patients who die from heart disease who are not listed as such because of the inadequacy of the required cause-of-death standards. The statistics on heart disease producing death most certainly can be looked upon with a great deal of skepticism. Surely it is not as frequent a cause as is very generally maintained. Although differences occur one way or the other there are apparently very many more deaths listed as heart disease than deaths which should have been listed as such.

Dr. Hedley is not only forceful in his criticism but is most constructive in his suggestions for the improvement of the recording of heart disease. He would have always the etiologic diagnosis put down plus the pathologic; thus, syphilitic heart disease—aortic valvular insufficiency. This can be interpreted properly and affords a basis for the right type of statistics. If there is any question about the diagnosis he would have the cause of death ascribed to sudden death, or cause of death not specified or ill defined. Thus there would be weeded out from the statistics the erroneous labeling of disease entities on inadequate data. Lastly, he urges, when the times comes for the revision of international list of causes of death that heart disease should be specified along etiologic lines.

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*Hedley, O. F.: Studies of heart disease mortality, U. S. Pub. Health Bulletin No. 231, 1936.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

## J. T. NIX CLINIC

New Orleans

At a meeting held in January the following paper was presented by Doctor Ruth G. Aleman.

### BANTI'S DISEASE; PRESENTATION OF A CASE

The presentation of a single case of Banti's disease may be justified on the ground that the patient is here in the hospital, has had splenectomy, and is making a very satisfactory recovery.

Banti's disease is usually seen in the comparatively young and runs a fatal but rather slow course with death from infection or hemorrhage. The symptoms may be divided into three stages: anemic or preascitic; intermediary; cirrhotic with occasional jaundice, followed by increased anemia, emaciation, exhaustion, fever and cardio-renal changes. The diagnosis must be made by exclusion, considering the age of the patient, the leukopenia and the chronicity. It is to be differentiated from Gaucher's disease, which shows a very large spleen with early anemia; from Hanot's cirrhosis, which is associated with jaundice, greater splenomegaly with abdominal crisis and leukocytosis; from pernicious anemia; the aleukemic stage of leukemia; Hodgkin's disease and hemolytic jaundice. Pernicious anemia and leukemia show characteristic blood-changes. Hemolytic icterus has discoloration of the skin as one of the earliest symptoms and is distinguished by the increased fragility of the red blood corpuscles. Syphilitic enlargement of the liver and spleen may also closely resemble Banti's disease; but there are usually the evidences of syphilis in the past history or the present condition of the patient.

Here is the story of this case: A boy, five years old, appeared for examination preliminary to tonsillectomy. He had had measles, whooping cough, chicken pox and mumps. His tonsils were enlarged and definitely diseased, his teeth were carious, his lungs showed bronchitis and his spleen was palpated one finger below the costal margin. The blood picture was normal. The tonsils were not removed at this time because of the existing bronchitis.

Three years later he came in for nose-bleed and was given a thorough examination. His spleen was then three fingers below the costal arch and his blood picture was that of secondary anemia. He was given 657½ milligram hours of radium over the spleen. The following year his examination showed the spleen: about the same; the heart: a systolic blow over the second left interspace; blood pressure: 95/58; lungs: negative. His Wassermann was negative and his blood picture was about the same; coagulation and bleeding time were normal. Since his tonsils were still diseased tonsillectomy and adenoidectomy were done and the patient made an uneventful operative recovery. He was given 953¾ milligram hours of radium over the splenic area. During the ensuing year he had 593 milligram hours of radium and spent a fairly healthy year. At the next examination, about one year later, his total white count had gone down to 3,000 with a hemoglobin of 45 per cent. He began to complain of fatigue on slight exertion and his skin was of a peculiar yellowish color. The mucous membranes were pale. During the two ensuing years he received 104¼ milligram hours of radium over the spleen.

When examined, one month ago, his spleen had enlarged to a hand's breadth below the costal arch, two inches to the right of the midline. The liver was palpated two fingers below the costal arch. The blood showed: Total white, 7,000; neutrophiles, 52; small lymphocytes, 40; large lymphocytes, 8; total red, 2,190,000; hemoglobin, 40 per cent. There were anisocytosis, poikilocytosis, pessary forms. Coagulation and bleeding time were normal.

The boy was hospitalized in the early part of September, the lowest counts being 2,150,000 red cells with 5,000 white cells, and hemoglobin, 45 per cent. Three whole blood transfusions of 99, 300 and 250 c.c. were given preliminary to operation. The operative procedure was that usually followed for splenectomy. The splenic vein was ligated as the last step in the operation in order that as much blood as possible might return to the circulation. On the seventh day of post operative treatment his total red count rose to 3,810,000 with a hemoglobin of 70 per cent and a total white of 10,000.

The following is the pathological description of the spleen:

Gross: Spleen measures 22 cm. in length, 12 cm. in its greatest width, and 7 cm. in its greatest thickness. It is of normal outline. The outer surface is generally smooth but here and there shows the presence of shallow fissures on the convex surface which are often marked by irregular yellow splotches which contrast sharply with the normal purplish red of the spleen. The organ is rather soft in consistency. On section, the surface is dark purplish red in color, trabeculae are fairly prominent. The Malpighian corpuscles can barely be seen, the pulp scrapes with some difficulty. The surfaces are moist in appearance and small irregular markings of a light yellow color are found here and there.

Final diagnosis: Splenomegaly. (Banti).

Summing up this case, it may be said that this represents a fairly classical case as described by Banti:

(1) A well marked splenomegaly; (2) a beginning cirrhosis of the liver with marked anemia. The patient apparently improved a great deal after splenectomy.

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## TOURO INFIRMARY

The annual meeting of the Medical Staff of Touro Infirmary was held Wednesday, January 13, 1937, at 8 p. m., Dr. Urban Maes presiding.

As is the custom, Dr. John A. Lanford directed a clinico-pathological conference on two cases. The first was a case of tuberculous meningo-encephalitis with many interesting unusual aspects. Drs. Holbrook and Lemann discussed the outstanding features, and slides of sections were projected upon the screen for demonstration. The organs were displayed.

The second case shown was one of carcinoma of the head of the pancreas with extensive involvement of the liver, without jaundice. Drs. Rives, Weinberger and Lemann entered into the discussion. Gross and microscopic pathology of the carcinomatous process were demonstrated.

There then followed a case report demonstrating the effect of heavy pavaex therapy in advanced peripheral vascular disease by Drs. S. Copland and M. Kaplan. Drs. Palmer and Crichlow discussed the presentation.

Dr. J. W. Tedder spoke briefly but fully upon the skin manifestations of Hodgkin's disease. Dr. Howles added to the subject.

Dr. Urban Maes reviewed the activities of the Executive Committee during the year.

The staff then voted upon nominations for election of two members of the staff to the Executive Committee. Drs. Urban Maes and J. D. Rives were chosen.

Following the meeting, refreshments were served in the dining room.

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## FRENCH HOSPITAL

A regular meeting of the French Hospital Staff was called to order Friday, Jan. 8, 1937 at 8:00 p. m., with Dr. Gordon presiding.

The interesting deaths of the month were discussed. Dr. Ciolino, in the absence of Dr. Stadiem, discussed the case of a two year old child, whose diagnosis was influenzal meningitis. The duration of the illness was only thirty hours and the first spinal puncture showed no micro-organisms, but B. influenzae was present in the second and third specimens.

Dr. Harris explained the possible severity of B. influenzae.

Dr. Palermo stated that the child complained of an earache and had an acute tonsillitis and adenoiditis three days prior to admission to the hospital. Although there was no pus or frank evidence present, he explained the possibility of such a type of infection originating in those areas.

Dr. Graffagnino explained the case of one Mrs. M. T., aged 42, diagnosis post-abortal septicemia. Prontosil, the much discussed medication for streptococcic infection, was used in this case and the interesting factor was that for two days no organisms were found, but again appeared and were present throughout until the patient's death. In the discussion of how, if possible, to stop criminal aborting, Dr. Graffagnino explained that the law is "only the person on whom the abortion was performed can testify against the abortionist." He stated that while such a law exists the stopping of such an act seems quite futile.

Dr. P. Graffagnino presented a paper on "The Endocrine and its Connection with Gynecology and Obstetrics." In abstract his talk was as follows:

1. Reproduction:
    (a) Double functional potentially of sex gland.
    (b) Periodicity.
    (c) Sex specific, not species specific.
2. Menstruation:
    (a) Uterine bleeding, such as Schroder, Gebhord, Corner.
    (b) Menstrual cycle—estrin, progesterone.
3. Organotherapy:
    The reasons for unfavorable results:
    (a) Threshold for effectiveness.
    (b) Threshold of response.
    (c) Lack of effect of gonadal hormone on glands.
    (d) Lack of effect of power of self regulation.
    (e) Pituitary activity modified—gonadal hormone and vice versa.
4. Indications for therapies:
    1. Amenorrhea—endocrine type.
        (a) Pituitary.
        (b) Thyroid.
        (c) Gonad.
    2. Sterility.
    3. Primary dysmenorrhea — endocrine type. Indications for progesterone and antuitrin S.—
    4. Habitual abortion.
        Indications for progesterone—
    5. Functional uterine bleeding.
        Indication for progesterone and antuitrin S.
    6. Vaso-motor menopausal symptoms.
    7. Gonorrheal vulvovaginitis in children.
    8. Senile vaginitis.
5. Diagnosis:
    1. Pregnancy test.
    2. Female hormone test.

(a) Blood.
(b) Urine.
3. Pituitary hormone test.
4. Ovulation test.

Dr. Graffagnino closed his paper with the statement of the possible dangers of the use of endocrine unwisely and stated that the only safe substance to date is the corpus luteum group.

Drs. Zander, Harris, and Ader expressed the great importance in the possibilities of endocrines in other fields.

The invitation for open discussion for any suggestions of how to improve and better the hospital was brought up. Dr. Palermo stated a reason for lack of patronage is the fact that the hosital does not belong to the Group Hospital Association and made the suggestion that the Executive Committee have a special meeting with the Board of Directors of the French Society and explain to them the advantages of this Insurance Association. This was seconded by Dr. Ader and Dr. Gordon stated that he would have an answer from the Board for the next meeting.

Dr. Zander suggested that a circular letter and self addressed envelope for any suggestion of how we may better the hospital at large be sent to all members and they may return them without signing their names.

The application of Dr. Di Bartolo was presented and given to the Membership Committee for approval.

A. J. Rando, M. D., Sec.

## MERCY HOSPITAL

Mercy Hospital started the year 1937 in a glorious way at its recent meeting of the Staff on January 6.

The meeting was called to order by Chairman Dr. George Hauser, and then the staff listened attentively to an address by Dr. Hauser who reviewed the year's activities of the hospital and made several suggestions to the new officers for the coming year. The new officers were placed in office: Dr. John Dicks, succeeding Dr. George Hauser as chairman; Dr. J. J. Irwin, succeeding Dr. E. L. Zander as vice-chairman; Dr. R. A. Oriol, succeeding Dr. W. J. Otis as treasurer; and Dr. H. Ashton Thomas, succeeding Dr. Lloyd J. Hanckes as secretary.

The scientific program was dispensed with to allow all members present to participate in a banquet given by the Sisters of Mercy to the staff. There were approximately one hundred doctors at this feast extravaganza which means that just that many enjoyed themselves to the utmost. Dr. Geo. Hauser acted as toastmaster and his introduction of members brought considerable enjoyment to those present.

The Staff was treated by talks from several members of the Advisory Board, Mr. John X. Wegmann being the speaker of the evening and Mr. Albert Stewart, Mr. Paul Andry, and Dr. E. L. Leckert supplementing his talk.

The banquet was climaxed by a short talk by the in-coming chairman, Dr. John Dicks, who told the members of his plans for 1937.

H. Ashton Thomas, M. D., Sec.

## HOTEL DIEU

The regular monthly meeting of the Staff of Hotel Dieu was held on Monday, December 21, 1936 at 8:00 p. m., in the Nurses' Lecture Room of Hotel Dieu.

The meeting was called to order by the President, Dr. E. H. Walet, and with the Secretary, Dr. J. A. LaNasa, at the desk.

The Scientific Program consisted of:

"Symposium on Hematology"

a. "Blood Dyscrasias—Practical Differential Diagnosis"—Dr. C. J. Tripoli.
b. "Certain Therapies in Blood Dyscrasias"—Dr. S. C. Jamison.
c. "Surgery of Splenic Disease"—Dr. J. T. Nix.

A recess of one minute was ordered by the Chairman after which the meeting resolved into Executive Session. The meeting was then adjourned.

## SCHUMPERT SANITARIUM

The Schumpert Staff was called to order at 8 p. m. on December 8, 1936 by the President, Dr. T. J. Fleming, after a very delicious turkey dinner. Thirty-one members were present. The minutes of previous meeting were read and adopted. Upon the motion of Dr. Clarence Webb, the membership of Dr. N. G. Bender was accepted upon the approval of the membership committee.

The scientific program was next. Dr. B. C. Garrett read a paper on "Brain Abscess with Herniation," which was demonstrated by pictures and x-ray films. This case was a boy about eleven years old, who had been struck on the head by a small piece of pipe, which was very interesting from a neurological standpoint as this little patient was in the hospital four months and finally succumbed. This paper was discussed by the following Doctors: D. L. Kerlin, D. H. Alverson, W. R. Harwell, and W. L. Atkins.

The next paper was "Trichinosis" by Dr. R. B. DeLee. This paper was well presented and demonstrated by lantern slides, showing the parasites in the tissue. This was discussed by the following Doctors: H. G. F. Edwards, H. B. Wren, J. D. Youman, George Wolfe, and W. H. Browning.

Due to the lateness of the hour the paper of Dr. Clarence Webb on "Nephritis" was postponed until the January meeting. Dr. Fleming informed the staff of some new equipment that the Sanitarium has recently installed, also called attention to the new nursery for the new born babies, and the proposed plans of installing a pediatrics department on the first floor.

W. L. Atkins, M. D., Sec.

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## SHREVEPORT CHARITY HOSPITAL

On December 15, 1936, the following members of the Hospital Staff enjoyed an unusually delicious turkey dinner: Drs. Bill Browning, Geo. H. Cassity, J. A. Wilkinson, R. B. DeLee, H. P. Blandino, N. Balistrella, Dudley R. Isom, Clifford W. Crain, J. D. Youman, Harold G. F. Edwards, Leon F. Gray, Chas. R. Gowen, E. L. Sanderson, M. D. Hargrove, W. J. Craig, W. M. Scott, C. H. Webb, C. B. Erickson, P. W. Winder, A. Jerome Thomas, R. H. Worley, J. Corrigan, P. D. Abramson, E. Wenk, W. S. Atkins, F. Burton, W. B. Worley, Bruce Crew, C. R. Mays, N. J. Bender, W. R. Mathews, J. S. Shaven, H. W. Boggs, E. T. Chandler, J. R. Stewart, R. T. Lucas, W. E. Crumpler, Jr, L. M. Vaughn, O. L. Sanders, T. M. Oxford, T. E. DePriest, W. S. Terry, Jr., and C. H. Potts.

After dinner the scientific program was held in the assembly room. The minutes of the previous meeting were adopted as read, and Dr. Boggs gave an interesting follow-up on the case of possible ruptured gastric ulcer which was presented at the last meeting. Although no diagnosis has as yet been made, it is now apparent that the pathology in this case is in the thorax, and not in the abdomen as was previously supposed. Further developments in this case are to be reported at a subsequent meeting.

Dr. Sanderson thanked the staff for its splendid cooperation throughout the year, and pointed out that many improvements have been added to the hospital, among these being an increase of three hundred beds. But he reminded the staff that, unfortunately, the financial growth of the hospital has not been proportional to its growth in size. Certainly this is an added incentive for the strictest economy on the part of the members of the Staff.

The following hospital report for the month of November, 1936, was read by the Secretary:

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|---|---|---|
| Admitted | 1717 | |
| Discharged | 1755 | |
| Deaths | 92 | |
| Autopsies | 17 | or 18.5% |
| Births | 115 | |
| Operations | 782 | |

New business: Dr. Oxford bemoaned the fact that attendance to these meetings is as poor as it has been. He pointed out that with the wealth of material in this hospital, which is equalled by few and surpassed by no other hospitals, the attendance and interest in these meetings should be much greater than it is. Dr. Oxford believed that the primary cause for this lack of interest is the type of programs presented in the past. It was his opinion that in planning the programs, too much emphasis has been placed on the unusual and bizarre, and suggested that in the future the program committee should outline its programs months in advance, and that the program should be composed of summaries and statistical evaluation of the more common diseases, using large numbers of cases for material. Dr. Oxford believed that, if such programs are worked out, they will be much more enthusiastically received, with a consequent increase in attendance. Dr. Abramson remarked that in the past this very scheme had been attempted, and agreed with Dr. Oxford that in theory this type of program has many advantages, but in practice it was far from what was desired. He pointed out that only very occasionally was it possible to find a member of the Staff who had either the time or inclination to contribute to such a program. Dr. Gowen, the Chairman, appreciated these remarks, and assured complete cooperation of the program committee in presenting the best possible programs in the future.

Dr. Hargrove presented the first of two cases, that of a 60 year old white male, who, for three years, had been troubled with substernal pain on exertion. The pain did not radiate, and was relieved by rest. Prior to admission, an attack more severe than previous ones occurred, and for the first time pain was referred to the shoulders and down the left arm. On admission, this man's temperature was 100°, white blood cells were 10,000, with 8 polys, Wassermann negative, blood pressure 150/100. Physical examination of the heart and peripheral vessels showed no significant changes from the normal but the electrocardiographic tracing was characteristic of coronary occlusion of the posterior coronary artery. The diagnosis was coronary occlusion.

The second case was that of a 63 year old negro male who had suffered for some months with substernal pain, choking sensations, and some dyspnea. These symptoms also were relieved by rest, but at times attacks of nocturnal dyspnea were experienced. In this case the physical examination revealed a greatly enlarged heart with blowing systolic and diastolic murmurs over the precordium. Fluoroscopic examination was typical of the heart of aortic regurgitation. The electrocardiographic tracing was similar to the one in the preceding case, but the diagnosis here was luetic heart disease with aortic regurgitation and possible aneurysm. Dr. Hargrove pointed out that in many ways the symptomatology of these two cases was similar, in that the predominating symptom, pain, was substernal in character, and was relieved by rest. He next discussed the pathogenesis of pain in these two types of cases, and recalled that the pain in the first case was due to ischemia of the heart muscle, resulting from the decreased diameter of the coronary artery, and pointed out that the pain in the second case resulted from one or more of the following factors: (1) Aortic regurgitation with resulting reduced coronary flow or (2) increase in the size of the heart, without proportional increase in the coronary bed or (3) mechanical obstruction due to the abnormal luetic aortic valves or the extension of the luetic process to involve the ostia of the coronary arteries.

Treatment: Case 1 responded very well to bed-rest, sedatives, and a low caloric intake. This last factor in treatment is important, because of the consequent lowering of the metabolic rate, and reduction of amount of cardiac labor. Case 2 responded fairly well to rest in bed, sedatives, and a mild anti-luetic treatment, which should consist first in mixed treatment, and later the careful administration of bismuth in small ascending doses.

Prognosis: Dr. Hargrove pointed out the following facts which give the first case a reasonably good prognosis, i. e., (1) It was a posterior occlusion, (2) the duration and character of the pain was not long or severe, (3) the fever was not high, (4) the shock was not profound and (5) the heart was not found to be dilated. The prognosis in the second case was not considered to be good, due to: (1) aortic regurgitation, luetic in nature, and (2) evidence of involvement of the coronary ostia in the luetic process.

Discussion: Dr. Sanderson asked what factors contributed to further attacks of coronary occlusion, and Dr. Hargrove pointed out that these attacks of coronary occlusion may result from progressive involvement of the coronary artery, or that one may have, rarely, only one attack, with a fall in blood pressure, and that this lowered blood pressure, together with the arrest of the sclerotic processes in the coronaries, would mitigate against further attacks.

In answer to Dr. Blandino's question as to when it is safe to move these patients to x-ray and elsewhere, Dr. Hargrove said that the concensus of opinion is that probably the safest time is forty-eight hours after the insult, because at this time, the myocardium has not as yet reacted to the ischemia, or, in the event of infarct formation, this process will not as yet have softened.

These cases were further discussed by Drs. Youman, Mays, Cassity, and Edwards.

The next case was presented by Dr. Paul Abramson, and was that of a negro male, 30 years of age, who, during a previous admission, had undergone amputation of the fingers of both hands, as a result of gangrene. Dr. Abramson considered this case to be similar to, if not identical with, Buerger's disease. He pointed out that Buerger's disease occurs in all races, including the negro, and therefore this patient's race does not exclude that possibility. Although this case was rather sudden in onset, which is not typical of Buerger's disease, yet such an onset is, at times, observed in that disease. As to etiology, Dr. Abramson remarked that infections have been thought to be the cause, but that the great predominance of Buerger's disease in the male can be taken as evidence against such a cause. He also gave evidence that the difference in the hormones of the two sexes might be the explanation of its rare occurrence in the female. Many still hold tobacco to be a causative agent, particularly in those sensitive to this substance.

The evidence which Dr. Abramson presented in support of this case being an endarteritis obliterans was: (1) distal pulses were not perceptible either by manual palpation or oscillometric readings. Further evidence was presented in the form of very striking arteriograms, made serially after inter-arterial injection of thorium. In connection with this phase of presentation, Dr. Abramson discussed the differential diagnosis of the various peripheral vascular diseases on the basis of the arteriogram. Dr. Abramon's diagnosis in this case was progressive, disseminated, occluding arteritis of unknown etiology.

Discussion was opened by Dr. Mathews, who said the histologic examination of the pathologic specimen in this case was consistent with the diagnosis of endarteritis obliterans, but he pointed out that there are no pathognomonic, pathologic findings in the condition, and that the diagnosis can be arrived at only after taking into consideration the clinical findings, plus the pathologic evidence of infectious arteritis. He thought that this disease was similar to, or identical with, Buerger's disease.

In discussing the treatment of these conditions, Dr. Abramson said that attention should be directed towards: (1) pain and (2) the relief of gangrene. The conservative method of treatment, using the suction-pressure apparatus, has been encouraging in his hands.

The case was discussed by Drs. Winder, Oxford, Mays, and Sanderson.

The fourth case for presentation, due to the late hour, was postponed until next meeting.

There being no further business, Dr. Gowen adjourned the meeting, with the hope that future programs would be as enlightening and interesting, as was tonight's.

S. G. Wolfe, M. D., Sec.

## HUTCHINSON MEMORIAL CLINIC

*Symposium on Hematuria*: Conducted by the Department of Urology, Dr. John G. Pratt, presiding.

Dr. Pratt—Bladder Conditions Causing Hematuria: Hematuria is one of the most important and most significant of urinary symptoms. Mackenzie reported 21.6 per cent of 3,800 urological patients had hematuria; 3.9 per cent of the general admissions to the Pennsylvania Hospital gave a history of having passed blood in the urine.

Local causes of midtract urogenital hematuria: Stone, tumors of bladder (at least 50 per cent of gross hematuria—Hinmann), ulcers, infections and diverticulum.

The symptoms of bladder calculus are: blood, pus and organisms in the urine; frequent and painful urination; straining at the end of the act; cutting off suddenly of the stream by the ball valve action of the stone. Cystoscopic examination of the bladder is the only sure method of making a diagnosis of vesical calculus, and of determining the method of approach to remove it. Small calculi may at times be grasped with cystoscopic forceps and then removed with ease; large ones may be crushed with visual lithotrite and the particles removed with a suction evacuator. Still larger stones may only be removed by suprapubic cystotomy. In those cases where there is a vesicle neck obstruction and the stone is secondary to this obstruction, it is essential that this condition be taken care of after the stone is removed.

Acute cystitis in the female may or may not be accompanied by hematuria. It may be ushered in by a macroscopic hematuria accompanying frequency of urination, burning on urination, pain and straining at the end of the act with blood throughout the urine, or only blood at the end of the act. In both the male and female it must be kept in mind that there has been blood in the urine, and upon subsidence of the symptoms from proper treatment, there must be a cystoscopic inspection made of the bladder, as there may be a condition present, such as a tumor, and the acute cystitis was superimposed upon it.

Chronic ulcerative cystitis may be a cause of hematuria. Tuberculosis of the bladder associated with renal tuberculosis may cause blood in the urine. The Hunner ulcer, or localized submucous fibrosis may be the cause of vesicle hematuria, and a differentiation of these conditions can only be made by a competent urologist who is familiar with the cystoscopic picture of these conditions.

Diverticulum of the bladder may cause a vesicle hematuria due to a diverticulitis from infection, or, more important, a tumor of the diverticulum. The treatment of a diverticulitis consists of removing the vesicle neck obstruction which is, in most cases, the cause of the diverticulum, and if it does not clear up, at a later date remove the diverticulum. Where a tumor is present in a diverticulum, it is imperative that the diverticulum be removed as soon as possible.

Injuries of the bladder, such as contusion, rupture, and penetrating wounds, cause hematuria. Due to the protection afforded the bladder by the bony pelvis, contusions and ruptures of the bladder are comparatively infrequent, but they do occur; there is always blood in the urine. A history of injury about the pelvis or a blow in the suprapubic region should always make one suspicious of an injury to the bladder. The diagnosis of rupture or penetration of the bladder is made upon the nature of the injury, more or less severe shock, and pain with inability to void accompanied by a constant desire to do so. A few drops of blood may be passed. However, an air cystogram under fluoroscopic observation is helpful. If the rupture is extraperitoneal, the air will be confined by the tissues extravesically. If intraperitoneal, it will rise to the diaphragm in the sitting position, and to the upperside in the lateral prone position. Treatment of rupture of the bladder consists of combatting shock, then immediate surgery, suprapubic cystotomy and repair of the rent in the bladder, drainage of extravasated urine from the tissues, if an extraperitoneal rupture; if intraperitoneal the peritoneum should be opened and the urine evacuated by suction.

Last but not least, and by far the greatest and most dangerous cause of bladder hematuria, are tumors of the bladder. Edwin Beers classifies primary tumors of the bladder by division of epithelial growths as follows: (A) Papillomata, benign; 2. papillomatosis. (B) Papillary carcinomata. 1. Superficial; 2. infiltrating. (C) Nonpapillary, infiltrating carcinomata, including adenocarcinomata, medullary carcinomata, squamous cell carcinomata.

These groups represent the great majority (about 95 per cent—Hinmann) of all cases presenting for diagnosis and treatment. The other 5 per cent are tumors derived from mesothelia and heterotopic tumors. The cause of bladder tumors is unknown, but it is known that workers in aniline dye factories are prone to develop papillary tumors, both benign and malignant.

The most frequent symptom of bladder tumor is painless hematuria, the urine ranging in color from a smoky pink to almost pure blood with or without clots. Should the tumor be in a position where it can be pinched or squeezed by the vesicle sphincter, there may be a terminal hematuria. Intermittent hematuria is usually the rule and the patient may pass blood for one or two urinations, or even for a day or two, and then the urine will clear up and remain clear for a variable length of time. This is rather unfortunate, as the patient or the unsuspecting clinician will think that some medication taken by mouth has cured the hemorrhage, whereas, if the bleeding had kept up, aid would have been sought to determine the cause.

The fact that the hematuria is symptomless is another bad factor, as the patient always thinks, if there is no pain, that there is no danger. The intermittency and the painless bleeding are factors which prevent the urologist from getting into action in the early stages of the growth.

All tumors do not act alike, even when they are of the same class, and the rule of early bleeding does not hold true in the growth of a tumor. Some of these growths may have as their first symptoms, frequency and pain and pus and blood in the urine. In all tumors, sooner or later, the bladder becomes infected and we have superimposed upon the symptoms of hematuria, those symptoms which are referable to the infection, i.e., frequent and painful urination. Bleeding may be so profuse in some tumor cases as to fill completely the bladder with clots and cause an acute retention. At times, if the growth is on the sphincteric margin, there may be associated with the symptoms of frequency, pain and terminal hematuria, some interference with the urinary stream. Should the growth be an infiltrating malignancy and located at or near the ureteric orifice so that it encroaches upon the lumen of the ureter, then there will be added to the picture, an intermittent hydronephrosis with pain of varying degree in the loin on the side affected.

Symptoms due to metastasis of the growth only occur very late in the course of the disease. As a rule the terminal stage of bladder growth is one of sepsis and uremia, and not due to metastasis. In all cases of hematuria, and in all cases in which there is an intractible cystitis, it is essential that a cystoscopic examination of the bladder be made. As a rule the majority of tumors of the bladder will occupy the trigone and the ureteric areas. The most frequent site of tumor of the bladder is just above and slightly lateral to the ureteric orifices. However, the entire bladder must be carefully inspected as the more malignant tumors have a habit of not respecting any portion of the bladder, and the papillary growths may seed themselves about the bladder. The cystoscopist will have to determine the nature of the growth by the picture which the growth presents. The benign papillary growth will appear like seaweed attached to the bladder mucosa by a short, slender stalk with long delicate fronds waving in the water current, and each frond having a delicate blood vessel coursing down its midportion. They are loose in appearance, but are actually attached to this slender stalk.

There is another type of papillary growth which is slightly malignant and belongs to the Broder's Type II. It has a short, fairly stout pedicle; the villi are shorter and more compact, being closely packed together, giving the growth a more meaty appearance. The third type of papillary tumor has a broad base, the villi are mere nubbings, and are densely packed together, giving the growth a raspberry appearance. As it gets older the base becomes infiltrating and the surrounding base becomes edematous. This is infiltrating papillary carcinomata of Broder's Type III. The fourth flat type of growth is non-papillary with the marked edema about the growth, and the growth itself appearing as a hard, irregular, nodular mass with necrosis about its center.

As all of these tumors become older or become infected, the picture changes and necrosis of the growth occurs. Also there are tags of adherent pus about them, and should an alkaline infection be present, the growth will become incrusted with phosphatic material, at times giving the tumor the appearance of a calculus.

In order to prove one's clinical conception of a bladder tumor at the time the cystoscopic examination is made, it is only necessary to bite off two or three portions of the growth with a pair of specimen forceps, and have them examined by a competent pathologist. It really is remarkable to see how closely a good clinical opinion of a tumor will coincide with the pathologist's report on the specimen. A method of determining the degree of malignancy of a tumor which was used before specimens were taken, was the reaction of the growth to the coagulating current. The more benign growths would melt like butter before a fire, giving off a lot of gas and gooey substance. At times there would be small explosions, audible to the operator and the patient. The more malignant the tumor was, the less was its reaction to the current; less gas and gooey substance evolved and the greater was the adherence of the electrode to the substance. In the less dense tumors, large pieces of tumor would be pulled away with the electrode.

Cystography is used quite frequently today to determine the size, the extent and the infiltration of growths. The technic of this operation is to inject 5 per cent or 6 per cent sodium iodide solution through a catheter, completely filling the bladder. This injection should be done by a low gravity flow, so as not to overdistend the bladder, and cause a spasmodic contraction of the bladder, which might lead to an erroneous reading of the plate. After the sodium iodide picture is made, all of the iodide is allowed to flow out of the bladder and the bladder is distended gently with air, using a Paguelin cautery bulb and bladder, and a second picture is made. In the iodide plate the tumor will appear as a dark filling defect; in the air cystogram it will appear as a light area against a black background.

The treatment of bladder tumors depends upon the type of tumor and its grade of malignancy. In the benign papillomas, bipolar fulguration is indicated. In early, slightly malignant papillomas, fulguration will cure them. In older or more mature tumors of this type, fulguration and radon seed is the best method. In the Types III papillary carcinomas, which are superficial, radon seed and fulguration will sometimes cure them. In the infiltrating papillary carcinomas, open operation by suprapubic cystotomy combined with fulguration and radium implants is indicated. In Type IV of nonpapillary infiltrating growths, partial or total cystectomy should be done.

Dr. Edgar Burns—Renal Hematuria: The cardinal symptoms of renal tumor are hematuria, pain and tumor, usually occurring in the order named. In adults, hematuria is the initial symptom in 40 per cent, pain in 30 per cent and tumor in about 10 per cent of cases. Most all new growths of the kidney are malignant, making early diagnosis and nephrectomy before metastasis occurs necessary for cure. In practice, fulfillment of this requirement is apparently the exception, as at the present time, the average five-year cure by nephrectomy is reported to be not over 15 per cent. A diagnosis based upon the presence of the three cardinal symptoms can hardly be called an early diagnosis. Failure to make an early diagnosis is usually based upon failure properly to interpret symptoms presented and to make the necessary examination. Hematuria is always a signal of possible danger and, even if only a few hours duration, justifies whatever examination is necessary to determine its source. In children a slightly different problem is presented. Embryonal tumors are rare in adults but are almost the only ones found in children under six years of age. They encapsulate early with very little tendency to break through into the renal pelvis, and for that reason reverse the order of cardinal symptoms. Tumor and pain predominate and hematuria is relatively rare. An important point in diagnosis is that other tumors of the upper abdomen in children under six years of age are so rare that any tumor in this area can be called renal tumor with little chance of error. Kidney tumors are classified according to location into: (1) Those of the renal pelvis which, from a pathological standpoint, are almost identical with tumors of the bladder, the exception being that squamous cell types in the kidney are a little more common, and (2) those of the renal parenchyma, which at the present time, are of uncertain classification. It suffices to say that they are all malignant and cannot be differentiated clinically.

Case histories were presented representing the common types found in children and adults with lantern slides of specimens removed.

Dr. Willoughby Kittredge—Causes of Hematuria from the Prostate and Urethra: Probably the one commonest cause of hematuria from the prostate is enlargement of the gland. This may consist of either a benign hypertrophy or carcinoma. The benign hypertrophy cases bleed at least four times as often as the malignancies. There are two reasons for this: first, benign hypertrophy often consists of a middle lobe enlargement either alone or in conjunction with other lobes. These lobes are superficially placed just beneath the mucosa of the posterior urethra and often project out into the bladder through the internal spinchter. Congestion is produced by the patient's constant effort to urinate past this obstruction, leading to a markedly congested mucosa which bleeds very easily. On the other hand, malignancies are usually deep-seated. The majority originate in the posterior lobe and when they spread they usually tend to grow up behind the bladder rather than into the bladder. The bleeding produced by prostatic enlargement is usually so-called terminal hematuria. By this is meant the patient urinates a clear stream of urine, right at the very end of which appears a few drops of pure blood. The bleeding from prostatic enlargement may not be a terminal hematuria but may be an actual hemorrhage which occurs into the bladder and is not suspected by the patient until he reaches the condition of acute retention, at which time he is catheterized by a physician and his bladder found to be full of blood clots. Treatment for this emergency consists of energetic lavage of the bladder in an effort to remove all of these clots after which a catheter may or may not be left in the bladder in an effort to check further bleeding. Should lavage of the bladder be impossible or should it be impossible to introduce a catheter, the only procedure left is a suprapubic cystotomy.

Chronic posterior urethritis and chronic inflammatory disease of the prostate also lead to a terminal hematuria. The two conditions should be always considered together inasmuch as the urethra is so intimately associated with the prostate and becomes inflamed as a matter of course during every prostatic infection. Prostatitis may be acute or chronic. The reason why the posterior urethra is so apt to bleed is that there is a superficial plexus of veins just beneath the mucosa and when congestion develops, there is a grinding motion of the two surfaces of the urethra at each time that the patient finishes the act of urination. This grinding motion produces trauma which leads to hematuria. Rarer causes of hematuria from the posterior urethra are impacted stones in the prostate wall and inflammatory polypi occurring in the posterior urethra. These polypi are more frequent in women than men. In any case they lead to a terminal hematuria when present. The discharge from a gonorrheal urethritis when present in the posterior urethra is very irritating in nature due to the liberation of an endotoxin from the disintegrated gonococci present in the discharge. This discharge originating in the posterior urethra will flow back into the bladder through the weak internal sphincter, flow out on the trigone and produce a more or less chemical cystitis limited to the trigone. This in turn adds to the dysuria present in these cases and may lead to some oozing of blood from this congested trigone. The commonest cause of hematuria from the anterior urethra is probably injury. These injuries may be classified as external or internal to the urethra itself. External injury is usually the result of blows received on the perineum and may also be due to fragments of bone puncturing the urethra after fracture of the pelvis. Internal injury of the urethra is due to instrumentation. An interesting fact about the bleeding from injury to the urethra is complete and the segments are allowed to retract, the distal segment will be so placed that no blood is able to come through it and appear at the meatus. In such cases the diagnosis of bleeding will have to be made by the presence of swelling, extravasation and ecchymosis at the site of injury. Blood, when it does appear as the result of injury to the anterior urethra is usually constantly present at the meatus between voiding. Minor injuries such as bruises will often bleed for a short period of time—twelve to twenty-four hours— and then stop. Such cases may bleed again after the eighth-day period has passed and sloughing occurs. In either case no treatment is necessary as the bleeding will usually stop after a few hours. The treatment of severe injury consists primarily in the diversion of the urinary stream above the site of injury which may be accomplished either by suprapubic cystotomy or a perineal urethotomy. Rarer causes of bleeding in the anterior urethra are chancres when they occur intra-urethrally. These are, fortunately, rare and very hard to detect when present. The same is true of intra-urethral tumors. These tumors are often mistaken for strictures in the early course of the disease as they produce obstruction to the flow of urine and resist the passage of instruments in exactly the same manner that a stricture would. They are not really diagnosed until late in the course of the disease when the disease has extended to the point where it can be noticed externally. Impacted stones in the urethra will sometimes result in hematuria particularly after some jarring injury, which causes the stone to scratch the urethral mucosa.

Dr. John G. Menville—The Non-Neoplastic Lesions of the Kidney Causing Hematuria: Hematuria may truly be designated as the outstanding danger signal in urology and its importance cannot be overstressed. The most pertinent remark I have to make tonight is that every case of hematuria should be investigated by a competent urologist.

The causes of hematuria I would like to mention are non-neoplastic lesions of the kidney, namely: Calculus; tuberculosis; non-specific infection; cysts, solitary and polycystic kidneys; echinococcus; rupture of the kidney; infarcts; aneurysm of renal artery; hemangioma and varicosities, actinomycosis; hemorrhagic Bright's disease and idiopathic hematuria.

Calculus: Keyes states that stone is not a disease but the result of several diseases. Many factors enter into its formation, the chief ones being metabolic perversions and infections with specific types of bacteria. The chief symptoms and signs are pain, pus and blood. Hematuria is not an important diagnostic sign. It is rarely severe and it may occur with or without pain. It is most frequently brief and recurrent but may occur in the form of a constant ooze for some days when there is ulceration about the stone. Moderate hematuria commonly follows pelvolithotomy but it lasts only a few days. Following nephrolithotomy Israel found bleeding in 17 per cent of the cases.

Tuberculosis: The diagnosis may be fairly simple in the hands of a competent urologist but in some cases, particularly in the early lesions, it may be difficult. The outstanding symptoms are those produced by bladder pathology which is so frequently associated with renal tuberculosis, namely frequency, nocturia, hematuria, dysuria and pain. In 403 cases of nephrectomy for renal tuberculosis at the Mayo Clinic the author found hematuria to be present in 41 per cent of the cases. The diagnosis is made by a microscopic examination of the urine including a stain for the tubercle Bacillus, by guinea pig inoculations or by a culture of the urine. The examination of the urine coupled with intravenous urography will often give all the information desired. This is particularly true in the hands of experienced urologists. However, it is frequently necessary to resort to the most accurate method of diagnosis, namely cystoscopy with retrograde pyelography. Calcification is a helpful finding. It occurs in 8-10 per cent of the cases.

Nonspecific Infections: Hematuria is not a constant or characteristic finding but it may be present. Detection of renal infections presents no difficulties if the urologist is conscious of their possible existence. Microscopic examination of the urine, cystoscopy, retrograde pyelograms or intravenous urograms will make the diagnosis.

Cysts—solitary: Five per cent of all autopsy examinations show renal cysts. Quinby and Bright recognize four types of cysts: serous which is the most common; pyelogenic which communicates with the renal pelvis; parapelvic which is probably a diverticulum of the renal pelvis, and hemorrhagic which is due to a ruptured blood vessel. Cysts of the upper pole are most likely to cause symptoms and they are due to pressure. Hematuria is rare. A KUB will often make the diagnosis while pyelograms will confirm it.

Polycystic Kidney: This is undoubtedly congenital. Some authorities agree that it is almost always bilateral while others state emphatically that it is always bilateral. Symptoms occur usually in early life or during middle age and when noted the signs are those of renal insufficiency associated with a mass in one or both sides. Hypertension occurs in 50 per cent of the cases. The urine shows a low specific gravity. Hematuria is present in 25-40 per cent of the cases. Colics, secondary to the passage of blood clots, may be noted. The pyelograms are typical. They present an orchid-like appearance. The life expectancy is ten years.

Echinococcus: The unruptured cyst presents a renal deformity. The symptoms are those of pressure. When rupture occurs the patient develops colics from the passage of debris and small grapelike cysts. Scolices plus hooklets are found in the urine. Roentgen ray shows cyst ring calcification of the adventitious tissue. Eosinophilia occurs in 5-40 per cent of the cases.

Rupture: Rupture is rare. Eight per cent are due to a blow on the back or flank. Hematuria following contusion of the loin is the most constant and characteristic sign of ruptured kidney and it occurs in 80-95 per cent of the cases. However, one may have hematuria without rupture of the kidney. The course of hematuria is irregular; it may flow freely for some days before diminishing or it may recur in two weeks. Excretory urography may be tried immediately unless the patient is anuric. Retrograde pyelography should not be used for one week. Surgical intervention may be necessary. Wounds of the kidney other than rupture are rare and present no special features.

Infarcts: Large infarcts are characterized by pain and hematuria. They are most frequently seen in senile arteriosclerosis of the larger arteries and in the presence of mechanical injury or distortion of the pedicles of a mobile kidney.

Aneurysm of Renal Artery: This is rare. Mathe found a preoperative diagnosis is only seven of fifty-five cases. The important diagnostic sign is a calcified ring or wreath located either just above the pelvis or in the parenchyma just outside a calyx.

Hemangiomas and Varicosities: These are exceedingly rare and a preoperative diagnosis is almost impossible. Hemangiomas give a pyelographic deformity indistinguishable from a renal neoplasm. Varicosities may give a pelvic deformity if a blood clot is present or if the varicosities are prominent.

Actinomycosis: Hematuria may occur in the late stages but it is not a characteristic finding. Pyelography will show a renal deformity and unless the fungus is found in the urine, a preoperative diagnosis is practically impossible.

Hemorrhagic Bright's Disease: These cases give a history of scarlet fever or tonsillitis. One notes pallor and puffiness of the face, about the eyes, and occasionally of the feet and hands. Fever, leukocytosis and an increased blood pressure may be noted. In the chronic active stage of the disease, hematuria is always present.

Idiopathic Hematuria: Such a diagnosis is made only after a thorough urological examination and only when all other possibilities are ruled out. The treatment is expectant. Surgical intervention should be used only when absolutely necessary. Occasionally such cases of hematuria are caused by a papillitis.

# TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

## CALENDAR

FEBRUARY 1. Board of Directors, Orleans Parish Medical Society, 8 p. m.

FEBRUARY 1. Pathological Conference, Hotel Dieu, 8:15 p. m.

FEBRUARY 2. Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.

FEBRUARY 3. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

FEBRUARY 3. Mercy Hospital Staff, 8 p. m.

FEBRUARY 3. Board of Governors, 1st and 2nd District Dental Society, 8 p. m.

FEBRUARY 8. Orleans Parish Medical Society meeting dispensed with because of confliction with Carnival activities.

FEBRUARY 9. Touro Infirmary Staff, 8 p. m.

FEBRUARY 12. French Hospital Staff 8 p. m.

FEBRUARY 15. Hotel Dieu Staff, 8 p. m.

FEBRUARY 16. Charity Hospital Medical Staff, 8 p. m.

FEBRUARY 17. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

FEBRUARY 17. Charity Hospital Surgical Staff, 8 p. m.

FEBRUARY 17. 1st and 2nd District Dental Society, 8 p. m.

FEBRUARY 18. Eye, Ear, Nose and Throat Club, 8 p. m.

FEBRUARY 19. I. C. R. R. Hospital Staff, 12 Noon.

FEBRUARY 22. ORLEANS PARISH MEDICAL SOCIETY, 8 p. m.

FEBRUARY 23. Baptist Hospital, 8 p. m.

FEBRUARY 24. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

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During the month of January the Society held its annual Installation Meeting and one regular scientific meeting.

Mr. Nicholas Bauer, Superintendent of the New Orleans Public Schools was the orator at the Installation Meeting. Dr. Frederick L. Fenno, the retiring President, read his annual report. Dr. James T. Nix gave his inaugural address. Following these talks a buffet supper was served to the members.

At the meeting of January 25, papers were read by Drs. James Wm. Tedder and Erwin Wexberg. Annual reports of the officers, and special and standing committees were read.

Final action on the following Amendment to the By-Laws was taken:

Section 3. Associate Members: Eligibility—Every dentist residing in Orleans Parish who is a member in good standing of and recommended by the First and Second District Dental Society of Louisiana; also, Medical Officers of the Army, the Navy and the Public Health Service of the United States; also teachers not physicians or those men on Fellowships in recognized medical schools or hospitals in the Parish of Orleans, restricted from any private practice.

One of the first official acts of the new administration was the issuance by the President of a letter to the membership, urging them to participate in the deliberations of the New Orleans Graduate Medical Assembly. Dr. Nix requested that all local medical men register at once for this activity. Members of the Orleans Parish Medical Society may register by forwarding a check for $10.00 payable to the New Orleans Graduate Medical Assembly, to the offices of the Orleans Parish Medical Society, upon receipt of which a registration card will be returned.

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Drs. Robert A. Strong and Edward L. King conducted a series of lectures which opened the "Refresher Courses" in six principal cities in Florida. These courses will continue in the same cities for a period of six weeks, and are under the auspices of the Maternal and Child Health Division of the Florida Board of Health.

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Drs. Geo. H. Hauser and Edwin H. Lawson were awarded certificates at the meeting of the American Board of Pathologists held in Baltimore on November 17, 1936, thereby becoming members of the Founders' Group of this Board. Drs. Hauser and Lawson are the only two licentiates at present in the city.

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Drs. E. D. Fenner, J. T. O'Ferrall and H. Theodore Simon attended the recent meeting of the American Academy of Orthopedic Surgery, which was held in Cleveland, Ohio. Dr. Simon had a scientific exhibit at this meeting, the subject being, "A Newer Method of Teaching Fundamental Principles in Fractures," with movie reel demonstration.

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Drs. Val H. Fuchs, J. Raymond Hume, Francis E. LeJeune, Mercer G. Lynch, Geo. J. Taquino, and William A. Wagner attended the meeting of the Southern Division of the American Trilogical Society, held in Memphis, Tennessee, on January 12 and 13.

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Dr. C. C. Bass attended the meeting in New York of the Advisory Committee on Public Health of the Commonwealth Fund, to which he was appointed recently for a term of three years. Dr. Bass, while in the east, also attended the meeting of the American Association for the Advancement of Science, which was held in Atlantic City during the last week of December.

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Dr. Ernest Carroll Faust attended the meetings of the American Association for the Advancement of Science and affiliated societies. He was installed as President of the Academy Conference, one of the councilor groups of the Association.

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Dr. J. Raymond Hume was a guest speaker at the convention of the Texas Eye, Ear, Nose and Throat Society, held recently in Fort Worth.

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Dr. Urban Maes was one of three out-of-state speakers who conducted a two-day course of postgraduate instruction at the University of Arkansas Medical School, Little Rock, on January 13 and 14. Dr. W. C. Alvarez, of the Mayo Clinic and Dr. Curtis Rossner, Professor of Proctology at Baylor University, were the other guests.

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Dr. James E. Bailey addressed and led a discussion on "Infectious Diseases of Children" at a meeting on January 12, of the Parent-Teachers Association of the McDonogh No. 9 School.

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Dr. J. M. Batchelor spoke before the recent meeting of the Civic Department of the New Orlans Federation of Clubs.

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Dr. Wm. A. Wagner lectured recently before a meeting of members of the Alpha Chapter of Theta Beta, national honorary biological society, at Loyola University, on his illustrated color film of a new sinus operation method.

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Dr. George J. Taquino has been appointed Professor and Head of the Department of Oto-rhino-laryngology, in the Undergraduate School of the Louisiana State University Medical Center, to succeed the late Dr. Homer Dupuy. Dr. Taquino has been Professor of Clinical Oto-rhino-laryngology since the establishment of the Louisiana State University Medical Center here in 1931.

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Dr. Walter Joseph Otis has been appointed Physician-in-Chief of DePaul Sanitarium. He succeeds Dr. H. Randolph Unsworth, who resigned recently. Dr. Otis is Assistant Professor of Clinical Neurology and of Clinical Psychiatry of the Graduate Medical School of Tulane University, and is also connected with the neurological staffs of Mercy and Charity Hospitals, and Hotel Dieu.

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Dr. Donovan C. Browne addressed the Tri-County Medical Society at their meeting held in Lake Providence, January 5, 1937.

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Dr. James K. Howles was a speaker at the meeting of the Issaquena-Sharkey-Warren Counties Medical Society at Vicksburg, Mississippi, on January 12, 1937, his subject being "Precancerous Dermatoses."

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## NEW MEMBERS

Drs. Edith Eskrigge, Murrel H. Kaplan, Luke Marcello and Reginal D. Shamblin.

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## TREASURER'S REPORT

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| Actual book balance: Nov. 30, 1936 | $1,769.70 |
| December Credits | $1,264.69 |
| Total credits | $3,034.39 |
| December expenditures | $1,249.96 |
| Actual book balance: Dec. 31, 1936 | $1,784.43 |

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During the month of December, 60 volumes were added to the Library. Of these, 11 were received by gift, 19 from the New Orleans Medical and Surgical Journal, 6 by purchase and 24 by binding. Notation of new titles of recent date is given below:

The Library has loaned to doctors 641 books and journals during December, or more than 1¼ to each active member of the Society. In addition, 657 items have been loaned to students making a total of 1298. These figures do not include the great use of books and journals within the Reading Rooms.

On request of physicians, members of the staff have collected material on the following subjects during the month:

Galactose tolerance.
Renal arteriography.
Life of S. M. D. Clark.
Tumors of cecum.
Lymphatic leukemia.
Banti's disease.
Amputation.
Artificial vagina.
Ocular headache.
Charcot joint.
History and anecdotes of anesthesia.
Roentgenologic diagnosis of syringomyelia.
Personal bibliography of E. L. King.

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## NEW BOOKS—December, 1936.

A. M. A.—Proceedings of the House of Delegates. 1936.

Mattice, M. J.—Chemical Procedures for Clinical Laboratories. 1936.

Cole, W. H. & Elman, Robert—Textbook of General Surgery. 1936.

Balme, Harold—Relief of Pain. 1936.

Rothermell, Fred—To Raise These Halt. 1936.

Berens, Conrad, ed.—Eye and Its Diseases. 1936.

MacCallan, A. F.—Trachoma. 1936.

Balyeat, R. M.—Allergic Diseases, their Diagnosis and Treatment. 1936.

Ohler, W. R.—Truth about Bright's Disease. 1936.

Eckstein, Gustav—Canary, the History of a Family. 1936.

Sheldon, Wilfrid—Diseases of Infancy and Childhood. 1936.

Orr, J. B.—Food, Health and Income. 1936.

Blum, Sanford—Applied Dietetics. 1936.

Muller, E. A.—Modern Treatment and Formulary. 1936.

Grollman, Arthur—The Adrenals. 1936.

Brown, Percy—American Martyrs to Science through the Roentgen Rays. 1936.

Todd, J. C. & Sanford, A. H.—Clinical Diagnosis by Laboratory Methods. 1936.

Peter, L. C.—Extra-ocular Muscles. 1936.

Delafield, Francis, & Prudden, T. M.—Textbook of Pathology. 1936.

Gilbert C. Anderson, M. D.,
Secretary.

# LOUISIANA STATE MEDICAL SOCIETY NEWS

## THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

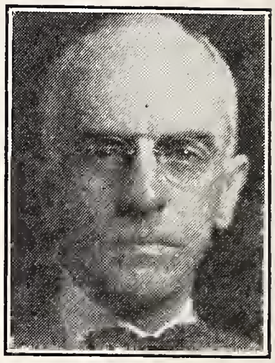
March 8-11, 1937

## EIGHTEEN GUEST SPEAKERS

### Medical Knowledge from North, South, East and West

*Wm. W. Babcock, M. D.,* of Philadelphia, Pa. Professor of Surgery and Clinical Surgery, Temple University School of Medicine.

*R. L. Cecil, M. D.,* of New York City. Professor of Clinical Medicine, Cornell University Medical College, New York.



*Anthony Bassler, M. D.,* of New York City. Formerly, Professor Gastro-Enterology, New York Polyclinic Medical School and Hospital, and Medical School of Fordham University.

*R. E. Dyer, M. D.,* of Washington, D. C. National Institute of Health, Washington.

*M. F. Campbell, M. D.,* of New York City. Professor of Urology, New York Polyclinic Medical School and Clinical Professor of Urology, New York University College of Medicine.

*A. C. Furstenberg, M. D.,* of Ann Arbor, Mich. Dean of the Medical School and Professor of Otolaryngology, University of Michigan.

*A. Benson Cannon, M. D.,* of New York City. Chief of Clinic, Department of Dermatology, Vanderbilt Clinic, New York.

*Julius Hess, M. D.,* of Chicago, Ill. Professor of Pediatrics, University of Illinois, College of Medicine.

*John A. Kolmer, M. D.,* of Philadelphia, Pa. Professor of Medicine, Temple University School of Medicine.

*Robert B. Osgood, M. D.,* of Boston, Mass. Professor of Orthopedic Surgery, Emeritus, Harvard University Medical School.

*E. P. Pendergrass, M. D.,* of Philadelphia, Pa. Professor of Radiology, University of Pennsylvania School of Medicine.

*George M. Piersol, M. D.,* of Philadelphia, Pa. Professor of Medicine of the Graduate School, University of Pennsylvania.

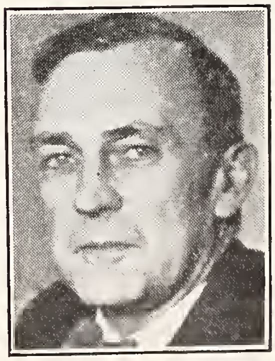
*Lewis J. Pollock, M. D.,* of Chicago, Ill. Professor of Nervous and Mental Diseases, Northwestern University Medical School.

*H. J. Stander, M. D.,* of New York City. Professor of Obstetrics and Gynecology, Cornell Medical College; Obstetrician and Gynecologist-in-Chief, New York Hospital, and Director of the Lying-In Hospital.

*Hugh H. Trout, M. D.,* of Roanoke, Va. Surgeon, Jefferson Hospital.

*Clifford B. Walker, M. D.,* of Los Angeles, Calif. Associate Clinical Professor of Ophthalmology, University of Southern California School of Medicine.

*George Gray Ward, M. D.,* of New York City. Professor Obstetrics and Gynecology, Cornell University Medical College.



*Ralph M. Waters, M. D.,* of Madison, Wis. Professor of Anesthesia, University of Wisconsin Medical School.

### 1937 ANNUAL MEETING

The following doctors have been appointed as chairmen of the committees in charge of preparation for the 1937 Annual Meeting of the Louisiana State Medical Society, to be held in Monroe, April 26, 27 and 28.

Dr. A. L. Peters—Badges.

Dr. F. C. Bennett—Commercial Exhibits.

Dr. C. P. Gray, Sr.—Commercial Publicity.

Dr. C. P. Gray, Jr.—Entertainment.

Dr. J. B. Vaughan—Finances.

Dr. D. M. Moore—Lanterns and Sound Equipment.

Dr. R. W. O'Donnell—Locations.

Dr. Morgan Simonton—Registration and Hotels.

Dr. John Snelling—Scientific Exhibits.

Dr. F. P. Rizzo—Signs and Decorations.

Dr. W. L. Bendel—Sports.

Dr. B. M. McKoin—Transportation.

### SHREVEPORT MEDICAL SOCIETY

The regular meeting of the Shreveport Medical Society was called to order on January 5, 1937 by Dr. Rutledge with 45 members and one guest present. The minutes of the previous meeting were read and adopted. The Chair was then turned over to the newly elected President, Dr. Heidorn, who, in a few remarks, outlined his ideas concerning the conduct of the Society for the coming year. Following brief reports of the Secretary and Treasurer, attention was turned to the Scientific Program.

Dr. W. M. Scott presented an interesting paper on "Essential Hypertension," pointing out its frequency, that if recognized early these individuals can be aided, that it affects individuals during their productive years, and apparently is increasing in frequency. His paper was liberally discussed by Drs. Lloyd, Blandino, Knighton, Jr., Herold, Rutledge and Knighton, Sr.

Unfinished Business: The Committee on the application of Dr. Geza Aczel reported favorably. The rules were suspended and Dr. Aczel was elected by open ballot, the oath being administered by the President.

New Business: Application for membership in the Society of Dr. R. R. Wilson was received, found in proper order and the Society ordered that it take the regular course. The following resolution was introduced by Dr. Caldwell: "The Shreveport Medical Society agrees that, if it is the wish of the Fourth District Medical Society, there can be four, rather than two combine meetings during the year." This motion was seconded by Dr. Hargrove. Dr. Herold introduced the following substitute: "That it is the sense of the Shreveport Medical Society that we have, as in the past, two meetings jointly with the Fourth District Medical Society and that two meetings be held during the year elsewhere in the District." This was seconded by Dr. Pirkle. The substitute motion carried.

Announcements: The newly appointed standing committees were announced by the President.

Paul D. Abramson, M. D., Sec.

### ST. TAMMANY PARISH MEDICAL SOCIETY

At a meeting held January 8, 1937 at the Southern Hotel in Covington, the following officers were installed for the year 1937:

President, Dr. W. L. Stevenson; Vice-president, Dr. R. B. Paine; Secretary-Treasurer, Dr. H. D. Bulloch.

Business was dispensed with and refreshments were served to the members of the Society and their guests. The Society was honored in having present at the meeting, Dr. W. H. Kostmayer and Dr. P. T. Talbot, respectively President and Secretary-Treasurer of the State Society, Dr. Rhett McMahon, Councilor of the Sixth District, Dr. Leon Menville, noted radiologist of New Orleans, and Mr. H. K. Goodwyn, Editor of the St. Tammany Farmer.

The next meeting of the Society will be held in Mandeville.

H. D. Bulloch, M. D., Sec.-Treas.

### ST. TAMMANY PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. W. L. Stevenson, Covington.

Vice-President—Dr. R. B. Paine, Mandeville.

Secretary-Treasurer—Dr. H. D. Bulloch, Covington.

Delegate—Dr. Carl Young, Covington.

Alternate—Dr. H. E. Gautreaux, Covington.

### ACADIA PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. H. L. Gardiner, Crowley.

Vice-President—Dr. A. B. Cross, Crowley.

Secretary-Treasurer—Dr. J. W. Faulk, Crowley.

Delegate—Dr. H. L. Gardiner, Crowley.

Alternate—Dr. A. B. Cross, Crowley.

### RED RIVER PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. E. A. Carlisle, East Point.

Vice-President—Dr. W. L. Davis, Coushatta.

Secretary-Treasurer—Dr. W. W. Gahagan, Coushatta.

Delegate—Dr. L. S. Huckabay, Harmon.

### LAFOURCHE PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. I. J. Boulet, Larose.

Vice-President—Dr. Leo Kerne, Thibodaux.

Secretary-Treasurer—Dr. P. J. Dansereau, Thibodaux.

Delegate—Dr. C. J. Barker, Thibodaux.

Alternate—Dr. Guy Jones, Lockport.

## OUACHITA PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. C. U. Johnson, Monroe.

Vice-President—Dr. J. P. Brown, Monroe.

Secretary-Treasurer—Dr. R. M. Simonton, Monroe.

Delegates—Dr. G. W. Wright, Monroe, Dr. A. L. Peters, Monroe, and Dr. I. J. Wolff, Monroe.

## JEFFERSON DAVIS PARISH MEDICAL SOCIETY OFFICERS, 1937

The following officers were re-elected for the year 1937:

President—Dr. Morgan Smith, Jennings.

Vice-President—Dr. John G. McClure, Welsh.

Secretary-Treasurer—Dr. L. E. Shirley, Jennings.

## EIGHTH DISTRICT MEDICAL SOCIETY

The Eighth District Medical Society, at a recent meeting, elected the following officers for the ensuing year:

Dr. S. L. Calhoun, Alexandria—President.

Dr. A. B. Cairns, Bunkie—First Vice-President.

Dr. D. C. McBride, Alexandria—Second Vice-President.

Dr. J. A. White, Jr., Alexandria—Secretary-Treasurer.

Dr. W. F. Couvillion, Marksville—Delegate.

Dr. B. H. Texada, Alexandria—Alternate.

The Society adopted a resolution placing the organization on record as desiring to cooperate with the Board of Directors of the New Orleans Charity Hospital in an effort to minimize the admission of indigent patients to the hospital. The resolution favored barring as many patients from the hospital as possible until the new building is completed, as well as preventing hospital abuses which it was declared are so largely practiced at the present time by the lay people and which may continue, even after the hospital facilities are increased. The resolution was introduced by Dr. Sam J. Couvillion of Moreauville and was unanimously adopted by the Society.

The scientific program included the following papers: "Obstetrical Analgesia", by Dr. Peter Graffagnino, "Fracture of the Upper Extremity", by Dr. H. Theodore Simon and "Uses of the Electrocardiogram", by Dr. Richard Ashman.

James A. White, Jr., M. D., Sec.

## SOUTHEASTERN SURGICAL CONGRESS

The Southeastern Surgical Congress announces the Eighth Annual Assembly of the Congress to be held in Louisville, March 8, 9 and 10, 1937, with headquarters at the Brown Hotel. This Assembly will in all probability be the most outstanding surgical meeting ever held in the South.

Thirty-seven of the country's most outstanding surgeons, representing each branch of surgery, have already been placed on the program and two more are to be heard from. There will be three full days of intense postgraduate lectures and one public meeting at which time the C. Jeff Miller Lectureship will be given. This lectureship will be the high point of the Assembly. Its purpose is to honor the late Doctor C. Jeff Miller of New Orleans. It was founded to commemorate the memory of Doctor Miller as a great surgeon and public benefactor. This Memorial Lectureship will bring together in one evening such men as Doctor W. D. Haggard, who is one of the world's greatest surgical orators and who will present the Memorial Address, Dr. Frederic A. Besley, President of the American College of Surgeons, Dr. Charles Gordon Heyd, President of the American Medical Association, Dr. J. H. J. Upham, President-elect of the American Medical Association, Dr. Frank Boland, President of the Southern Medical Association, Doctor Fred Rankin, President-elect of the Southeastern Surgical Congress and President of the Southern Surgical Association. These surgeons will all give talks on this occasion.

Programs will be mailed out about February 15. For information, write or wire Doctor B. T. Beasley, Secretary-Treasurer, 701 Hurt Building, Atlanta, Ga.

## NEWS ITEMS

Members of the faculty of the Graduate School of Medicine attending the meeting of the American Laryngological, Rhinological and Otological Society held at Memphis, Tenn., January 12 and 13: Prof. J. Raymond Hume, Prof. F. E. LeJeune and Prof. Wm. A. Wagner.

Prof. O. W. Bethea of the faculty of the Graduate School of Medicine, Tulane University, addressed the Homochitto Valley Medical Society at Natchez, Mississippi, on "Pulmonary Abscess".

Dr. Lucien W. Alexander of New Orleans, has been appointed colonel on the staff of Governor Leche.

Dr. H. W. Kostmayer, President of the Louisiana State Medical Society, Dr. P. T. Talbot, Secretary-Treasurer, Dr. John A. Lanford, Chairman of the Committee on Cancer, and Dr. John G. Menville, attended a meeting of the Seventh District Medical Society in Welsh, Louisiana, January 21, 1937.

There is an excellent opening in Kentucky for a young man interested in internal medicine. The data concerning this position may be obtained in the office of the Journal.

Dr. W. J. Otis announces the rearrangement of his office hours to be from 3:30 to 5 p. m. daily, Saturday and Sunday excepted, and by appointment.

## A NEW POSITION

The many friends of Dr. George T. Taquino will be delighted to know that this affable and able gentleman has been appointed Professor of Otolaryngology in the Louisiana State University Medical Center.

## AMERICAN COLLEGE OF SURGEONS

The sectional meeting of the American College of Surgeons to be held in Atlanta, February 3-5, 1937, at the Atlanta Biltmore Hotel will have a most interesting program which is on file in the office of the Journal. In addition to round-table conferences, clinics and so on, an excellent group of speakers on scientific subjects will appear on the program of this meeting.

## AMERICAN PUBLIC HEALTH ASSOCIATION

The next meeting of this organization, the sixty-sixth annual meeting, will be held in New York, October 5-8, 1937. The officers of the Association note that in the 1936 meeting in New Orleans, there were 1650 registrants, representing 45 states and 12 foreign countries. This is a remarkable attendance.

For the first time, the National Organization for Public Health Nursing meets with the American Public Health Association together with the following other related societies:

The American Association of School Physicians.
Internation Society of Medical Health Officers.
Conference of State Sanitary Engineers.
Conference of State Laboratory Directors.
Association of Women in Public Health.
Delta Omega.

## FIFTH INTERNATIONAL CONGRESS OF HOSPITALS

At the Congress in Rome, May, 1935, the International Hospital Association decided to hold the 1937 sessions in Paris. Previous sessions had been held in Atlantic City, Vienna and Knocke Sur Mer, Belgium. The meetings will occur during the International Exposition which will group the exhibits and products of more than fifty countries under the general caption, Art and Technology.

Dr. Malcolm T. MacEachern of the American College of Surgeons is vice-president of the International Hospital Association. The meetings will be held at Paris from July 6-11, 1937, and will include visits to some of the large hospitals, the Cancer Institute, and the principle agencies engaged in Public Health Work.

Persons attending the Congress will be granted important reductions in rates when traveling on French and foreign railroads. The Exposition authorities also will give special privileges to visitors.

Full information may be obtained from M. Chenevier, No. 3 Avenue Victoria, Paris IV, France.

## FIRST INTERNATIONAL CONFERENCE ON FEVER THERAPY

The First International Conference on Fever Therapy will hold its sessions on March 29-31, 1937, at the College of Physicians and Surgeons, Columbia University, New York City. The first day will be devoted to the discussion of physiology, pathology, and methods of production of fever.

The second day is to be spent in the consideration of miscellaneous diseases treated by fever, such as chorea, rheumatic carditis, ocular diseases, arthritis, leprosy, meningococcus infections, undulant fever, tuberculosis, tumors and skin diseases.

The morning of the third day is to be devoted to the consideration of syphilis.

Ministries of Health from many countries have indicated their intention to send official representatives to the Conference. Those desiring to participate are requested to communicate with the Chairman of the Section in which they are interested. The manuscripts of all papers must be submitted to the appropriate chairman before February 1, 1937. Selection for the program will be made by February 15.

All who plan to attend the Conference are urged to register promptly with the General Secretary, Dr. William Bierman, 471 Park Avenue, New York City. The registration fee is $15.00.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census reports that for the week ending December 12, there were 160 deaths in the city of New Orleans, divided 106 white and 54 negro, giving a death rate of 17.4. The infant mortality was surprisingly low at a rate of 52. For the next week ending December 19, there was a very considerable increase in the total number of deaths; 188 experienced in New Orleans and divided 121 white and 67 negro. The death rate for the total group was 20.4. For the two divisions, white and negro, apparently the rates are no longer to be published. The infant mortality rate for this week was 93. For the last week in the year, which came to a close December 26, the total deaths were almost equal to those of the week previous, being 187, of which 108 were white and

79 negro. The death rate was 20.3 and the infant mortality was 93. For the 52 weeks of the year, the death rate in the city has been 18.3 as contrasted with a rate of 16.4 in 1935. Looking down the death rates in other cities, it is apparent that the year 1936 very widely has been a year of high mortality, as practically every city reporting has a higher rate for 1936 than it had for 1935. Incidentally, for the 52 weeks of the year, the death rate in New Orleans was exceeded only by that of the city of Nashville and equalled by that of the city of Washington, D. C. The week ending January 2, 1937, finds somewhat more cheerful figures, as only 151 deaths took place in the city, 87 white and 64 negro. The death rate was 16.4 as compared to a rate of over 20 for the two previous weeks. For the week ending January 9, 146 deaths are listed, divided 89 white and 57 negro. The number of deaths under one year was 11.

### INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the State of Louisiana, which contain the following summarized information: For the week ending December 19, the following diseases were reported in double figures: 49 cases of pneumonia, 37 each of syphilis and gonorrhea, 34 of pulmonary tuberculosis, 22 of cancer, 16 of scarlet fever, 13 each of malaria and diphtheria, 12 of influenza and 11 of chicken pox. Of the more unusual diseases, there was reported a case of poliomyelitis from Acadia, a case of tularemia from Rapides and undulant fever from both Caddo and East Carroll Parishes. For the last week of the year, pneumonia again led all other reportable diseases with 50 cases listed. This was followed by 36 cases of syphilis, 31 of pulmonary tuberculosis, 25 of cancer, 21 of gonorrhea, 13 of diphtheria and 12 of scarlet fever. The poliomyelitis case reported this week came from Rapides Parish, while a patient with typhus fever was discovered in Caddo and meningococcus meningitis originated in Orleans. Pneumonia still held sway as the leading reportable disease in the week ending January 2, 1937. Succeeding, in order of frequency, were 42 cases of cancer, 31 of pulmonary tuberculosis, 23 of influenza, 19 of syphilis, 15 of diphtheria, 14 each of scarlet fever and measles, 12 each of malaria and gonorrhea, and 11 of typhoid fever. Six of the reported cases of typhoid fever came from St. James Parish, no other parish reported more than one case. This week 3 patients with tularemia were found, one each in Morehouse, Orleans and West Carroll Parishes. A case of lethargica encephalitis was listed from Orleans Parish. For the week ending January 9, for some peculiar and unusual reason, the cases of pulmonary tuberculosis, 80 in number and almost triple the five year average, led the reportable diseases. It was followed closely by syphilis with 75 instances, and then came gonorrhea with 48 cases and influenza with 47 cases. There were also reported 53 cases of pneumonia, 26 of whooping cough, 29 of scarlet fever, 20 of cancer, 13 of diphtheria, 11 of typhoid fever and 10 of chicken pox. Another case of poliomyelitis was reported to the Bureau of Epidemiology, this time from Richland Parish. Webster Parish had the unique experience of reporting a case of small pox, the first that has appeared on the records for many weeks. Of the typhoid fever cases, not more than 3 were reported from any one parish. Although it has been said that influenza is rife, only comparatively few cases were reported, many less than the usual number reported at this time in a five year average. Reported cases of pneumonia were approximately the same as the five year average, while there has been a distinct slump in the cases of diphtheria, the five year average being 31.6, whereas only 13 cases were listed.

## WOMAN'S AUXILIARY

### Louisiana State Medical Society

President, Mrs. James Byron Vaughan, Monroe.

President-Elect, Mrs. George D. Feldner, New Orleans.

First Vice-President, Mrs. F. G. Ellis, Shreveport.

Second Vice-President, Mrs. T. H. Watkins, Lake Charles.

Third Vice-President, Mrs. E. B. Middleton, Homer.

Fourth Vice-President, Mrs. R. R. Arceneaux, Welsh.

Recording Secretary, Mrs. C. Grenes Cole, New Orleans.

Corresponding Secretary, Mrs. Joseph P. Brown, Monroe.

Treasurer, Mrs. Courtland P. Gray, Monroe.

Parliamentarian, Mrs. R. T. Lucas, Shreveport.

### JEFFERSON DAVIS PARISH

The Woman's Auxiliary to the Jefferson Davis Parish Medical Society held their January meeting in Crowley at the home of Mrs. J. W. Faulk. A brief business session was conducted by the president, Mrs. G. W. Remage.

An interesting discussion on the legislation of health insurance was led by Mrs. L. E. Shirley. Mrs. Shirley is a gifted reader and concluded the program with a reading "In the Royal Garden," which afforded delightful entertainment to the members.

Mrs. Claude A. Martin,
Publicity Chairman.

### ORLEANS PARISH

The Woman's Auxiliary to the Orleans Parish

Medical Society enjoyed its regular meeting and reception at the Orleans Club on January 13.

We were fortunate in having with us Dr. Urban Maes who gave an instructive discussion of appendicitis. This was a splendid introduction to our periodic health examination campaign which is being encouraged among our members. We all realize the importance of a yearly physical examination and should never neglect anything so important.

During the afternoon, a social hour was enjoyed over tea and sandwiches. We shall enjoy the pleasure of entertaining our mothers at the next meeting. This is a privilege to which we look forward each year.

Mrs. Edgar Burns,
Publicity Chairman.

## A MESSAGE TO ALL AUXILIARY MEMBERS

Following is an excerpt from a letter received from the National Chairman of Press and Publicity. This is of primary importance to all of us, and I do hope that the parish publicity chairmen will be able to get more news in to me so that I, in turn, may forward it to Mrs. Simonds:

"The National Auxiliary will be given space each week in the Journal of the American Medical Association, in the section devoted to the New Bulletin. The Board of Trustees and the officials of the Association have extended this courtesy to the Auxiliary because of the increasing usefulness of its service to the medical profession.

"As Chairman of the Press and Publicity Committee of the National Auxiliary, it will be my duty each week to send to Dr. Morris Fishbein, the Editor of the Journal, news items from National, State and County Auxiliaries. Dr. Fishbein will edit this Auxiliary news and will publish whatever is of National Auxiliary interest or value.

"The only sources which I have for obtaining State and County Auxiliary news are the reports which I receive from the State Press and Publicity Chairmen and the Auxiliary news which is published in State Medical Journals. The amount of publicity which any State Auxiliary receives in the Journal will depend entirely upon the amount of news which I obtain from these sources.

"The Journal of the American Medical Association has a weekly circulation of approximately 100,000 copies."

After reading the foregoing, it is quite easy to realize the importance of publicizing Auxiliary with a nucleus as is afforded by the Journal's circulation. I trust each publicity chairman will do her utmost to gather all the material possible for this space in the Bulletin.

Mrs. George D. Feldner,
Chairman Press and Publicity.

# BOOK REVIEWS

*Physical Signs in Clinical Surgery*: By Hamilton Bailey, F. R. C. S. (Eng.) 5th ed. rev. Baltimore, Wm. Wood & Co. 1935. pp. 287. Price $6.50.

This little volume has been edited five times since 1927 with two additional second impressions. This, in itself, speaks for the value as well as the popularity of the text.

As the title indicates, this book contains a description of physical signs in clinical surgery together with the detailed technic for demonstrating them. The subject matter is arranged so that those signs which are found in the same anatomical region are grouped together and form separate chapters, such as chapter IV, "The Neck," and chapter VII, "The Face and Jaws." The exacting detail and lucid description, so characteristic of English books, is everywhere manifested.

But few surgical texts contain an adequate description of most of the signs presented, and this little book should bear the same relationship to the study of surgery as does Cabot's Physical Diagnosis to the study of medicine. It should be in the possession of every beginning student of surgery. It can be recommended without qualification.

E. Perry Thomas, M. D.

*The Art of Treatment*: By William R. Houston, A. M., M. D., F. A. C. P., New York, The Macmillan Company. 1936. pp. 725. Price $5.00.

Dr. William R. Houston, with a new approach to theraupeutic thinking, brings you to the bedside of the patient instead of to the hospital amphitheatre, thereby bringing the practicing physican to a more intimate relationship with his patient. He treats diseased individuals rather than diseases, in fact, the labeling of the disease is relatively unimportant in comparison to the successful management of the case.

Although ample attention is given to the more concrete phases of treatment, the importance of psychotherapy is fully realized. In fact, this is the keynote of the book. Psychotherapy is set forth in a material way, with none of the quasimedical methods of presentation usually used. There may be some criticism of the amount of the subject matter given over to this field, but when one considers that every pathological condition presents a psychological phase it can be seen that this is not overemphasized.

The subdivision on patients who are to be treated chiefly by nursing care is a very good example of the book's theraupeutic approach. In this chapter, using typhoid fever as a working base, Dr. Houston finds an opportunity to demonstrate a theraupeutic armamentarium which can well be used in a great number of the common disorders of mankind. Some of the other chapter headings are The Specific Diseases Which Impose a Limitation Upon Life as a Condition of Treatment, Disorders in which Physiological Considerations Guide Treatment, and Conditions in which Treatment is Tentative and Experimental.

This book is to be recommended both to medical students and to the practicing physician. However, its chief usefulness will come to the practicing physician who is able to bring into actual use a great many of the ideas presented, something that the student with his limited material is unable to do. The style is discursive and thoroughly readable.

C. P. Cabibi, M. D.

*Pharmacopoeia of the U S. of America*: By the authority of the U. S. Pharmcopoeial Convention. 11th decennial revision. Easton, Pa., Mack Printing Co. pp. 676. Price $5.00.

The eleventh revised edition of the United States Pharmacopoeia became official on June 1, 1936. This standard has changed much in the 116 years of its existence and more than any other single work reflects the progress of the science of medicine.

The present volume is the product of a revision committee of fifty, including seventeen physicians and thirty-three members of the allied sciences assisted by a large group of collaborators who have given unstintingly of their time and effort. It represents five years of preparatory work by the previous committee of fifty, and five years of intensive labor by the present committee.

Naturally many changes are found in this edition. Fifty-eight new titles are included and 115 old ones have been omitted. Of this latter group those worthwhile have been added to the new National Formulary.

We find admitted to standardization such useful products as preparations of liver, ephedrine and theophylline, iodized oil, chiniofon, tryparsamide, and a number of vaccines and serums which are of approved value.

Few alterations have been made in the names of the preparations retained, and no material changes appear in the strength of the galenicals.

The various tables have been brought up to dato and the color descriptions have been largely revised.

It is apparent that the effort has been made to render the Pharmacopoeia an even more useful book for the physician and the present program for popularization that has been worked out with the Journal of the American Medical Association should result in this attractive volume being on the desk of every disciple of the healing art.

O. W. Bethea, M. D.

*Clinical Diagnosis by Laboratory Methods*: By James Campbell Todd, Ph. B., M.D., and Arthur Hawley Sanford, A.M., M.D. 8th edition rev., Philadelphia, W. B. Saunders & Co., 1936 pp. 792. Price $6.00.

The eighth edition of this well-known book has been revised and edited by Dr. Sanford, the senior author since the death of James C. Todd.

Clinical Diagnosis by Laboratory Methods, although intended to be a text-book, has grown to be more fitted for the clinical pathologist or technician; the wealth of material and the broad scope of the book certainly make it a treatise rather than a text-book.

The new material has been scattered throughout the book and twenty-five new illustrations are to be found in this edition.

As in the previous editions the colored plates showing different types of blood cells stained with Wright's stain do not convey the actual characteristic colors usually found.

For anyone desiring to possess a complete, simple and authoritative book on clinical pathology, Todd and Sanford's "Clinical Diagnosis by Laboratory Methods" is recommended.

Alberto Prieto, M. D.

*Extra Ocular Muscles*: By L. E. Peters, A. M., M. D., Sc.D 2d ed. rev. Philadelphia, Lea & Febiger, 1936. pp. 351. Price $4.50.

It is nine years since I previewed the first edition. It has remained one of outstanding merit in its field. Ophthalmology welcomes the second edition. It contains many advances in orthoptic and surgical treatment.

Has the author devoted sufficient space and enthusiasm to orthoptic treatment? Popular interest seems to justify more. His conservatism, in my opinion, is commendable. The trend of today is apparently toward the use of psycho-therapy concealed in gadget form of many kinds. One is orthoptic training equipment.

The very excellent table of contents and thorough index are excellent. So are the illustrations which are numerous and reasonably well selected.

Has the author stressed sufficiently the importance of functional disorders in the symptomatology and treatment of heterophoria? Like ancesters, we all have a little.

In conclusion, here's congratulations on the second edition. May it continue a classic.

CHAS. A. BAHN, M. D.

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*Food, Health and Income*: Report on a Survey of Adequacy of Diet in Relation to Income; By John Boyd Orr. London, Macmillan and Co., Ltd., 1936. pp. 72. Price $1.00.

It is universally recognized that individuals who are prevented from obtaining a proper diet are thereby deprived of realizing their anticipated growths in physical proportions. Orr has studied all available data in the United Kingdom in an effort to find substantiation of this common belief.

In the course of his survey, he decided not to discuss minimum standards because these are too contraversial but to adhere to the optimum requirements based on the physiological ideal, such that no improvement could be effected by any change in diet. He divided the population into six groups according to their incomes and took as his basis for comparison of good health, the physical states of those whose economic resurces permitted them to choose food freely without regard to cost.

The results of his survey corroborated the prevalent thought. In almost direct linear relationship, the number and the extent of physical disorders attributable to faulty or inadequate diet decrease as the income of the group increases. According to his standards, about 50 percent of the population of the United Kingdom is existing on an income which does not permit of proper selection of foods. There is enough evidence adduced to show that the great majority of these physical defects can be corrected by affording proper diets to these people.

The work is brief (72 pages), interestingly written, and replete with charts, diagrams and figures which show rather convincingly that the economic and political aspects of malnutrition cannot be considered as things apart from the medical problems. The publishers' phrase "A Challenge to the Nation to Improve the Health of the Rising Generation" is aptly chosen.

This work is recommended to anyone interested in studying problems related to nutrition.

SYDNEY JACOBS, M. D.

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*Recent Advances in Radiology*: By Peter Kerley, M. D., B.Ch. (N. U. I.), D. M. R. E. (Camb.), 2d ed. Philadelphia, P. Blakiston's Son & Co., Inc., 1936. pp 322. Price $5.00.

The celebrated English radiologist wrote this book with the intention of helping the general practitioner to appreciate the value of x-rays, and therefore he has included in this single volume all practical applications of diagnostic radiology. The recognition and explanation of existing pathology in terms of its roentgen shadows have been skillfully accomplished.

This second edition has been the result of the many advances in the science of radiology since the first edition was written. Extensive additions and alterations have been made in the chapter on bone diseases. The chaper on the lungs also has been considerably enlarged and the chapters on the heart and the biliary and renal tracts have been entirely rewritten.

This work consists of ten chapters devoted to the following subjects: Injuries and Diseases of Bone; Injuries and Diseases of Joints; Deformities and Diseases of the Skull; the Heart; Diseases of the Aorta; Pulmonary Artery and Mediastinum; the Lungs; Diseases of the Pleura and Diaphragm; the Alimentary Canal; the Biliary Tract, the Genito-Urinary Tract, the Uterus. The bibliography at the end of each chapter includes outstanding articles in the European and American literature. The illustrations are numerous and are very clear. The author has included diagrams to simplify the roentgen appearance in some cases. The index is complete and this book should be valuable for medical students, and general practitioners. It should also serve as a useful quick reference for radiologists.

J. N. ANE, M. D.

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*Roentgen Interpretation*: A Manual for Students and Practitioners: By George W. Holmes, M. D., and Howard E. Ruggles, M. D., 5th ed. Philadelphia, Lea and Febiger, 1936. pp. 356. Price $5.00.

This is the fifth edition of a well known work on roentgen interpretation. The authors have brought the subject matter up to date by the addition of such advances in diagnosis and technic, as have appeared since the previous edition was published.

This work has always been intended as a brief survey of roentgen diagnosis for practitioners and medical students. However, the organization of the subject matter and the addition of a rather complete bibliography and index should make this volume a valuable reference for the radiologist.

The first chapter dealing with confusing shadows and artefacts should aid considerably in avoiding errors in diagnosis due to the false interpretation of these shadows. The second chapter entitled "Anatomical Variations and Development" contains charts indicating the appearance and union of bone centers, and recommendations of areas to be filmed for bone-age determination, and should serve as a valuable reference in the busy roentgen laboratory. The chapters on bone pathology, the skull, and the spine present concisely and clearly the essential knowledge of these rather difficult subjects, keeping in mind at all times the pathological anatomy responsible for the roentgen shadows. The chapters on the heart and great vessels, the lungs, the gastrointestinal tract and the genito-urinary tract contain well illustrated descriptions of the usual conditions encountered. The final chapter dealing with fluoroscopic technic contains description of equipment, suggestions for protection, and the technics of fluoroscopic examination of various portions for various purposes, and should be carefully studied by all who use the fluoroscope.

J. Nane, M. D.

*The Riddle of Woman*: By Dr. Joseph Tenenbaum, New York, Lee-Furman, Inc., 1936. pp. 477. Price $3.50.

The Riddle of Woman presents a composite picture of the female in various environments and phases of existence. Fortunately, the reader is not subjected to a series of flowery and ambiguous dissertations on "Mysterious Woman," but rather a logical and pleasant survey which tends to rationalize rather than patronize woman's reaction to life.

The chapters on Sex Psychology and Sex Urge are slightly superior; the chapter on Women in Industry inferior to the rest of the book.

Zachary J. Romeo, M. D.

*Modern Urology*: Edited by Hugh Cabot, M. D., LL. D., C. M. G., F. A. C. S. 3rd. ed. Philadelphia, Lea and Febiger, 1936 2v. Price $20.00.

This work, in two volumes, represents the third edition of Dr. Cabot's text; the first appearing in 1918 and the second in 1924. The present edition is some 350 pages larger than the one before it and is made up entirely of original contributions by American authors. The list of contributors has, of necessity, been altered to some extent, with the addition of many new names, and changes in other departments because of deaths.

The text has been radically revised and in many sections completely rewritten, in keeping with the advances in technic and changes in conception that have come about in the past twelve years. One entirely new section has been added, namely, radiation therapy of tumors, by Dr. Benjamin Barringer.

This work meets equally the needs of the specialist and the general practitioner. The illustrations are profuse and for the most part original. Diagnosis and treatment are stressed throughout, and the various operative procedures, as well as the fundamental principles, are included, to make the work complete in every detail.

As Dr. Cabot himself admits, all composite works have an inherent weakness in that they lack smoothness and balance of works produced by a single author. There is always some lack of unanimity and always obvious differences of opinion where two men approach the same subject from different angles.

Whereas this would be an objection to the book, were it intended solely for students, it is not, as far as the profession at large is concerned, as the work may be regarded as a correlated set of monographs, each expressing the individuality of its author. In its present form, it may be considered a comprehensive and authoritative study of the science of urology, conservative in practice, yet modern in spirit.

W. E. Kittredge, M. D.

*Urological Roentgenology*: By Miley B. Wesson, M. D. and Howard E. Ruggles, M. D. Philadelphia, Lea and Febiger, 1936. pp. 269. Illus. pl. Price $5.00.

This work covers the entire field of x-ray diagnosis in urology as completely as possible. The films used as illustrations are, to a large extent, taken from the authors' personal cases, and are supplemented by plates from perhaps a dozen other urologists. The reading matter of the text consists of concise statements on etiology, pathology and treatment, followed by a detailed analysis of the roentgenological features in the diagnosis of each disease. The legends that accompany the illustrations are more or less complete case histories.

Whereas practically all known abnormalities are described in the text, the authors were naturally unable to obtain films of every type. In fact, it is to their credit that as many as 227 illustrations are offered, and that practically all of these have been confirmed by operation or autopsy.

The avowed purpose of the book was to furnish a reference work for the general practitioner, and not the specialist, and to a large degree this policy has been followed. However, in some instances, it appears that the authors yielded to the temptation to show the more unusual and odd manifestations of pathology to the exclusion of the more typical types. These cases are indeed interesting to the specialist but are not to be expected in the general run of practice.

After studying these pictures, one is impressed with the fact that in so many instances, urography does not offer characteristic proof of circumstantial evidence, which must, in each case, be correlated with the clinical findings. That the authors share this feeling is attested by this typical statement. That the authors share his feeling is attested by this typical statement on page 172,—"There is no such thing as a typical tumor pyelogram."

The writers of this work are delightfully frank in their admission, from time to time, of the limitations of x-ray diagnosis. They are careful to point out inadequacies, wherever present, particularly as regards intravenous pyelography. In addition they have included quite a number of films showing errors in preoperative diagnosis, as proven by subsequent pathological findings.

The work is certainly comprehensive in its scope and, on the whole, may be considered a reliable guide to the interpretation of urograms. Any urologist or roentgenologist will profit from a study of the plates presented.

W. E. Kittredge, M. D.

*Keeping Your Child Normal*: By Bernard Sachs, M. D. New York, Paul B. Hoeber, Inc. 1936. pp. 148. Price $1.50.

What a joy to find someone bold enough to say that sex does not dominate our lives from the minute we open our eyes, someone to divert our minds from the "infantile libido"! Imagine a psychiatrist saying that he believes in "a sense of loving obedience toward the parent and consideration for one's family and neighbors". If for no other reason than this, the book should be read by all parents and teachers.

Dr. Sachs takes up infancy and early childhood, the school age, puberty and adolescence. In all these periods of our life, he shows the parent how to handle a normal child so as to keep him normal and shows how most of the supposed abnormalities of the child exist only in the parent's mind.

The only dictum the reviewer does not agree with entirely is that environment is more important than heredity. Dr. Sachs is probably right, but we are all entitled to our opinions.

Suzanne Schaefer, M. D.

*Textbook of General Surgery*: By Warren H. Cole, M. D., F. A. C. S., and Robert Elman, M. D. New York, D. Appleton-Century Company, 1936. pp. 1031. Price $10.00.

This book is essentially a presentation, in the conventional form of a one volume text on descriptive surgery, of the most recently revised material prepared for didactic and clinical teaching of general surgery at the Washington University School of Medicine.

The authors give at least brief discussions or references to practically all of the more or less tested and presently accepted principles and practices in the general surgical field.

With but few exceptions, details of operative technic are omitted, and as indicated by the title, no attempt is made to present the surgical specialties such as oto-rhino-laryngology, ophthalmology, or other branches of surgery outside the scope of general surgery.

The book is written in a clear and simple form, is well illustrated, and is of convenient size. An excellent bibliography accompanying each chapter reflects thought and care in the selection of the recent as well as the older representative contributions referred to throughout the text.

Besides being suitable for use by medical students, the book contains much material which would be of interest to the practicing surgeon who is not as familiar as he might be with some of the more recent surgical literature and practice.

Ambrose H. Storck, M. D.

*Canary, the History of a Family*: By Gustav Eckstein, New York, Harper & Brothers, 1936. pp. 281. Price $2.50.

The author of the very popular biography of the great Noguchi has written in a most interesting and charming manner the history of a family of canaries that he observed over a period of eleven years. He displays the same searching observation in his study of the yellow bird as he did in his story of the Yellow Jack. Interestingly, he relates how he converted his laboratory into a huge cage and attempted to simulate natural environment so that they might lead a free and easy life. He found that they lead lives quite similar to those of humans. They love and hate, they work and play, they build and destroy, they hurt and heal, they lead communal lives and yet maintain certain intimate personal privileges as do individuals of the species of the homo sapiens. It is to the credit of Eckstein that he has been able to give us such a splendid commentary about these small sweet songsters.

I. L. Robbins, M. D.

## PUBLICATIONS RECEIVED

Bruce Humphries, Inc., Boston: Carcinoma of the Female Genital Organs by M. C. Malinowsky and E. Quater, translated from the Russian by A. S. Schwartzmann, M. D.

Lea & Febiger, Philadelphia: Dietetics for the Clinician by Milton Arlanden Bridges, B. S., M. D., F. A. C. P.

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The Macmillan Company, New York: Dietetics Simplified by L. Jean Bogert, Ph. D., with Laboratory Section by Mame T. Porter, M. A.

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# THE DIAGNOSIS OF MALIGNANCIES OF THE LUNG FROM THE PATHOLOGIST'S STANDPOINT*

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Neoplasms of the lung are not a rare disease. In fact when we consider that the lung is a filter through which passes blood and lymph from all parts of the body, it is not surprising the statement can be made that the lung is possibly the most frequent site of malignant disease, that is, those which arise primarily in the lung and its component structures, and those that are secondary to neoplasms in other parts of the body.

Neoplasms of the lung may be classified into benign and malignant types. By the term benign type is meant one that is histologically benign, but unfortunately, because of the structure of the lung, a new growth arising in that body, while histologically being benign, has within itself the possibility of creating so much disturbance of the normal function of the lung, that it can be classified as malignant by virtue of position. The most common types of neoplasms of this character are the adenomas, fibromas and chondromas.

Among the primary malignant neoplasms of the lung, carcinoma is by far the most common. The secondary neoplasms will include carcinomas primary in other parts of the body, particularly in the liver, gastrointestinal tract, breast and uterus, sarcomas, melanomas and lymphomas. There are also a small group of neoplasms that arise in structures within the mediastinum, which rather quickly extend secondarily to the lung tissue or at least encroach upon the structures of the lung, especially the bronchi in the hilum, and interfere with the normal function of the organ, and bring about conditions that are very deleterious if not fatal to the life of the individual.

The most important neoplasm of the lung possibly, is a primary carcinoma, and judging from the great number of articles appearing in the current literature, and the reports from the various medical centers, one would be inclined to assume that primary carcinoma of the lung is on the increase. Certainly, in our Clinic we are seeing a great many more primary carcinomas of the lung than we have in previous years. It is of course possible to explain this increase on improved diagnostic methods, both clinically and radiologically, as well as from the standpoint of the laboratory worker. In a recent article, Arkins claims that primary carcinoma of the lung comprises from 6 to 8 per cent of all carcinomas. In frequency, it ranks next to malignant conditions of the gastrointestinal tract.

Twenty years ago not more than 5 per cent of the cases were diagnosed clinically as carcinoma, whereas today more than 50 per cent are recognized, and it is believed that with careful consideration of all the symptoms, the clinician should pick up at least 90 per cent of the primary carcinomas of the lung.

## ETIOLOGY

If the increased number of carcinomas of the lung is real and not apparent, it is well to consider at this time some causes which may explain their increase. Since it is generally accepted that chronic irritation plays some part in the production of malignancy everywhere, it may therefore be assumed that any irritating substance that is inhaled through the air may play some part in bringing about malignancies of the lung. Among these irritating substances may be mentioned the dust of cobalt and arsenic containing ores, as well as radio-active substances. The highest incidence of carcinoma of the lungs is in miners who aspirate arsenic containing radio-active dust in the Sheeneberg mines in Jugoslavia. With the increased use of gasoline driven engines, such as automobiles and other motor vehicles, the air is more or less constantly filled with varying amounts of irritating gases from the exhaust of these motors, and it is thought that possibly the inspiration of these substances plays a part in chronically irritating the bronchial mucosa. It is also thought that possibly the irritation due to the dust of tar treated highways may play some part, but no statistics are available to prove the statement. However, statistics do show that 90 per cent of all the patients who suffer with malignancies of the lung (carcinomas of the lungs) were chronic tobacco smokers, and it is believed by some that the inhalation of tobacco may play an important part in producing sufficient irritation to bring about epithelial metaplasia of the bronchi or bronchioles.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

### AGE INCIDENCE

Recent statistics show that more than 89 per cent of cases occur between the ages of 41 and 70, only 9 per cent occurring between 21 to 40 years of age. Males are by far the more frequently afflicted individuals, and statistics show that from four to ten times more men than women. Arkin reported 125 men and 10 women in his series of 135. Negroes seem to be rather immune to this disease, only 9 per cent of Arkin's 135 patients were negroes, but it is highly possible that in the southern sections of the United States, the percentage would very probably be greater.

### DISTRIBUTION

A knowledge of the distribution of these new growths in the two lungs is important from the clinical standpoint as an aid in diagnosis. Sixty per cent occurred in the right lung, and 40 per cent in the left lung. The greatest number occur in the upper right lobe; next, the upper left lobe, lower left lobe and then right lower lobe, the right middle lobe being practically free from involvement primarily.

All primary carcinomas of the lung arise either in the trachea, bronchi or the bronchioles, having their origin either from the covering epithelium or the mucous glands of the part. Formerly, it was claimed that they arose from the alveoli, but it is generally accepted now that the lining of the alveoli of the lung is not epithelial but endothelial in type. By far the most frequent type springs from the bronchial mucosa, as the result of metaplastic changes in this structure.

### TYPES OF LUNG CARCINOMA

Depending on the degree of differentiation and the rate of growth, three distinct types of carcinomas can be recognized histologically. The alveolar or gland cell type called adenocarcinoma, the squamous cell type and the round or somewhat spindle shaped type. The round or spindle shaped type cell carcinoma is very uncommon and extremely malignant, because of its low degree of differentiation, and the ease with which it metastasizes. The adenocarcinoma type or gland cell type, which is characterized by the formation of large alveoli, is quite malignant and is rather prone to metastasize. The least malignant type is the so-called squamous cell variety. However, it has been my observation, that in every case a careful search through many areas of the tumor in the different parts of the lung will reveal very commonly both the adenocarcinoma arrangement, and the squamous cell type arrangement.

Anatomically, primary carcinomas of the lung can be divided into five types: (1) intrabronchial; (2) hilar or central; (3) intermediary; (4) peripheral and (5) lobar or diffuse. A knowledge of such division is of importance in the early diagnosis of the disease, and especially in the treatment that is possible or that offers any hopes whatever for recovery. If it is found that the lesion is intra-bronchial or confined to a single lobe or even a single lung, surgical procedure offers some hope of cure.

### EXTENSION OF GROWTH

Primary carcinomas of the lung not only

have great invasive power, and infiltrate the surrounding lung parenchyma, but they have the property also of extension through the lymph current as well as through the blood current. For this reason the prognosis of these neoplasms is extremely unfavorable, and it is only in the very early diagnosed cases that surgery is of importance and offers any hope whatever for the recovery of the patient.

Metastases usually first occur through the lymph stream to the regional lymph nodes, cervical lymph nodes, axillary lymph nodes and abdominal lymph nodes and then by extension, to the pleura, finally gaining entrance into the circulation to produce secondary new growths in the liver, kidneys, lungs or nervous system.

### DIAGNOSIS

Diagnoses of neoplasms of the lung and bronchi usually can be made by clinical or roentgenologic methods, but there are certain laboratory procedures which are resorted to which are of importance in confirming the diagnosis and determining whether or not the neoplasm is primary in the lung or elsewhere. These laboratory methods should be looked upon as confirmatory efforts and are to be made only in complete cooperation with the clinician, the roentgenologist and the surgeon.

The materials needed for the laboratory worker to confirm the diagnosis of malignancy of the lungs are one or more of the following:

1. Biopsy material removed by means of the bronchoscope from the neoplasm itself.
2. Material expectorated from the lungs.
3. Biopsy material from the regional lymph nodes, especially the axillary or cervical glands.
4. Pleural exudate.

Possibly the most important of these materials is bronchoscopic biopsy material. Such material may be obtained before the lesion has extended beyond its primary site, and if by radiological study, the location of the neoplasm is confined to one spot, the removal of the involved lobe or lung offers hope for complete recovery. However, if the axillary or cervical lymph nodes are involved, or material is expectorated by the patient from the lungs, or if pleural exudate shows neoplastic cells, the diagnosis is of importance only as confirming the diagnosis, and not as a method of offering any hope for cure, and indicates that surgical procedure is beyond offering any important aid for the cure of the patient. Pleural fluid when submitted for histologic study by the laboratory worker should be collected in 2 per cent sodium citrate solution.

### SUMMARY

Carcinoma of the lung is recognized more frequently than in the past. This may be due in part to the more careful study of the case from the clinical and more especially the pathologic point of view.

### DISCUSSION

Dr. Isidore Cohn (New Orleans): The first thing I would like to emphasize is the fact that we must become cancer-of-the-lung conscious. Until we do all the talk in the world will do no good.

Physical diagnosis alone does not enable us to make a diagnosis of cancer of the lung; the roentgen ray plus the aid of the bronschocopist will give the most valuable information. When the pleural exudate contains cancer cells it is too late to do any surgery. Roentgen ray and radium are only palliative and no case has been reported cured by roentgen ray or radium alone. Surgery alone offers the possibility of cure provided the diagnosis is early enough, and if, when one goes in, he does a complete job. Before we decide to operate, the skeleton must be examined to see if there are metastases.

Rosedale and McKay have studied a series of 57 bronchiogenic carcinoma; 51 occurred in whites and six in the colored race; 52 occurred in males and five in the female sex.

In a study of 36 cases they found that the right lung was involved in 20 cases, the left in 16 cases. There was a bronchial constriction produced by tumor in 22 cases. A review of their cases also showed a widespread distribution of metastases from primary bronchiogenic carcinoma.

In my own experience I have seen metastasis to the skeleton, liver, heart, kidney, and of course to the mediastinal lymph nodes.

Patients often present themselves with carcinoma of the lung and yet the diagnosis has not been suspected because the cough has been interpreted as an evidence of either influenza or tuberculosis. Often times there is a pleural transudate which is not bloody. From this pleural transudate by centrifuging the specimen and sectioning the material so obtained, differential diagnosis of growing carcinomatous cells can be found.

The roentgen ray appearance of primary carcinoma of the lung differs from that of metastatic lesions. The primary carcinomatous lesion is usually a circumscribed hilar shadow. Metastatic carcinomatous lesions in the lung are usually the "snow ball" type. Practically all carcinomas of the lung are bronchiogenic in type.

The greatest problem in the handling of carcinoma of the lung is early diagnosis. We have to get away from the idea that a patient with a cough is either a tubercular patient or one who has had influenza. The bronchoscopist should be consulted and asked to obtain a biopsy if sputum examinations are persistently negative. Surgery offers the only hope in cases of carcinoma of the lung. Roentgen ray and radium treatments are merely palliative and there is not a single recorded case of cure by roentgen ray and radium. There are recorded many cases in which an entire lung has been removed and the patient apparently remained well.

Dr. W. A. Wagner (New Orleans): Just as Dr. Lanford said, I must agree that roentgen ray and radium are of very little value in malignancy of the chest and lung. If the malignancy involves a bronchus or one lung, lobectomy or pneumonectomy is indicated. Therefore, how are we going to arrive at making a diagnosis on those cases that we might do something for surgically, such as tracheal and bronchial malignancy? Therein I believe is the opportune time for the bronchoscopist to lend his diagnostic assistance.

I have done numerous bronchoscopies and I have seen but one malignancy of the lung suitable to pneumonectomy. At the time I first saw this patient the malignancy was in the right main stem bronchus, and was diagnosed at the first bronchoscopy, at which time a biopsy was made. The diagnosis by biopsy was confirmed by the pathologist, and nothing done by the surgeon. Today such a case would be subjected to pneumonectomy.

Those cases are going to be seen late unless the internist sends the patients to us for bronchoscopy. We must see these patients if we are going to make a diagnosis. There is no question the common bronchoscope can detect these lesions. The only difficulty I found was hemorrhage. I removed a specimen and had quite a lot of bleeding. I packed the bronchus and permitted the pack to remain a few minutes, removed the bronchoscope, and let the patient remain on the table. Before the patient had recuperated from the anesthetic, the bronchoscope was reintroduced and the pack removed, with hemorrhage controlled. That patient died seven months later. Later, he was a subject for deep roentgen therapy as the mediastinum was extensively involved.

If the tumor encroaches upon the lumen of the bronchus it may serve as an obstruction or stop valve, or a check valve, thereby producing respectively an atelectasis due to no ingress or egress of air, or an emphysema due to no egress of air. Therefore, such patients with atelectasis and emphysema in which physical examination, roentgen ray and other laboratory findings fail to disclose a diagnosis, exploratory bronchoscopy is indicated. If during this procedure a neoplasm is encountered, a specimen may be removed for biopsy and its true histopathology determined. Upon the findings, proper treatment may be instituted.

# CANCER OF CERVIX*

HAROLD G. F. EDWARDS, M. D.
SHREVEPORT

Cancer today ranks second as cause of death. Cancer of the cervix annually exacts a toll of more than 16,000 women. A study of three hundred cases of cancer of the cervix examined and treated by me during the last year reveals that more than 80 per cent of patients applying for treatment have the disease in an advanced stage. No one will deny that progress has been made in the diagnosis and treatment of cancer of the cervix, yet a study of cases reveals that most of them come too late to be cured; not until symptoms have been present for many months. Hamant and Koenig state some of the main causes of delay: The patient does not know the symptoms of cancer and attributes the bleeding to the change of life. She is not alarmed until she notes pain, weakness, or loss of weight; seeks advice from friends, neighbors or quacks; hesitates to see a physician for fear she may be told she has a cancer or that she must go to a hospital. *The physician fails to examine the patient* or does not study her carefully. Because of poor training, the physician cannot recognize cancer, misses the diagnosis, gives wrong advice, and begins inappropriate treatment.

Bloodgood believed that the important means by which cures can be increased are: (1) Education of women and physicians with regard to the protective value of periodic pelvic examinations, making a diagnosis of early cancer of the cervix at a time before symptoms occur and at a time when a large percentage of cures may be expected; (2) training of skilled radiologists to meet the increasing demands of cancer clinics.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

### PREVENTION

Cancer propaganda has apparently not yet improved the material handled in my Clinic. Something more than the present method of propaganda must be done.

Cancer of the cervix is, as a rule, preceded by chronic cervicitis. The accidents of labor and abortion frequently terminate in low grade infections of the genital organs and always of the vaginal portion of the cervix. Chronic infections of low grade appear to be the forerunner of malignancy. To prevent cancer of the cervix a diligent search must be made for chronic infections and adequate treatment instituted. Lacerations should be repaired, erosions and cysts should be cauterized.

*Periodic examination of the cervix should be done on all patients at least every twelve months.* Shiller's test should be used; when positive, it may mean an erosion, a luetic ulcer, a leukoplakia, or carcinoma. A biopsy of this area should be taken and a careful microscopic study made so as to make a correct and early diagnosis.

### DIAGNOSIS

It is agreed that the success in treatment of cancer of cervix is almost entirely dependent upon early diagnosis. Early diagnosis such as one based upon early subjective symptoms, symptoms which are such as can be recognized by the patient and of enough importance to cause the patient to consult her physician for advice. Unfortunately, the symptoms of early cancer are so trivial that they fail to attract attention of the patients. Leukorrhea, bleeding and pain are not the symptoms of early cancer, they simply signal the symptoms of a disease which has already become firmly planted in the tissues. Vaginal discharge does not appear until the cancer has grown to sufficient size to cause active congestion and increased activity of the cervical glands. Bleeding cannot and does not make its appearance until the cancerous growth has replaced a considerable amount of tissue and until ulceration has taken place. The cervix is well known to tolerate considerable damage before there is pain, which occurs only as a late sympton. From what has been said it is quite evident that the early diagnosis of cancer of the cervix must depend on something more than symptoms which the patient can recognize. When symptoms occur which the patient can recognize, cancer is already too well established. It is not surprising that so few patients have an early diagnosis made. Early cancer findings are entirely objective and require a microscopic study for diagnosis. The early clinical appearance of cancer of the cervix is a nodule; if of the everting type, this nodule progresses on to a typical cauliflower growth with necrosis and later a sloughing mass leaving a crater behind. If the nodule is of the inverting type then the nodule grows to considerable size and finally ulcerates, becomes secondarily infected and leaves, as a result, a large crater.

The determining of the clinical extent of the disease is of great importance, since it must furnish information upon which treatment must be planned. A careful vaginal examination is necessary to determine the extent of the disease. Early cancer is limited to the cervix and on palpation the uterus is freely movable and devoid of secondary inflammatory signs in the adjacent tissues. Once the disease has become actively growing then the adjacent tissues become invaded with root-like extensions of cancer cells, an infiltration in the paracervical tissues and now the uterus is partly fixed because of the infiltration. When the invasion has extended into the parametrium, the uterus is fixed further because of the loss of elasticity of the parametrial tissue. In the final stage the entire pelvis is "frozen", revealing that the disease has invaded other organs and tissues. Rectal examination will frequently convey more information in stages II, III and IV than vaginal examination and will permit palpation of regional lymph nodes which could not be felt through the vagina.

### CLINICAL GROUPS

The clinical grouping of cases of carcinoma is the one recognized in most of the gynecological clinics of the world. It is the Schmitz or League of Nations Classification, and is based entirely upon clinical findings and not surgical ability. The terms, operable, borderline, and non-operable are obsolete and should be discarded forever. The following is the League of

Nations Classification of cases according to stage of the disease:

I. Disease limited to cervix; uterus mobile.

II. Disease spreading into fornices with or without infiltration adjacent to uterus; uterus partially mobile.

III. (a) Nodular infiltration of parametria extending to wall of pelvis, with limited mobility of uterus or massive infiltration of parametrium with fixed uterus.

(b) Superficial infiltration of large part of vagina with mobile uterus.

(c) Isolated metastases in pelvic glands with relatively small primary growth.

(d) Isolated metastases in lower part of vagina.

IV. (a) Massive infiltration of both parametria extending to walls of pelvis.

(b) Disease involving bladder or rectum.

(c) Whole vagina infiltrated, or one vaginal wall entirely infiltrated with fixation of primary growth.

(d) Remote metastases.

V. Cases previously treated by someone else.

### PROGNOSIS

The prognosis of a given case of cancer of the cervix depends upon; first, the clinical stage of the disease; second, the age of the patient, and last but not least, the plan of treatment. Young women under 30 years, according to Healey, rarely survive five years. Pain even in the early cases must be regarded as a bad prognostic sign and, when referred to the back, hips and thighs, usually indicates that the disease has already spread to the paravertebral lymph nodes.

Within the past few years much has been written about the prognostic value of the histologic grade of the tumor to be treated. At present, it may be said that the radiosensitiveness of the different histologic forms of cancer of the cervix is still unsettled, although the results being secured tend to support, to some extent, the biologic relation between anaplasia and radiosensitivity The results secured in treatment of the four tissue grougs are practically the same; there does appear a small difference between the adenocarcinoma group and the epidermoid group of marked anaplasia. Tissue grading alone seems to be of little prognostic value. However, histologic grading is of great value in determining the radiosensitivity of the tumor and determining whether or not metastasis is likely to occur.

### TREATMENT

*Surgery*: Today one never finds the old fight frequently brought out when the question of radium or surgery in treatment of cancer of the cervix is discussed. Only a few advocates of the surgical plan are left. It is generally conceded that operation is justified in only the very early stage, at which time the disease is confined to the cervix and the uterus is freely movable with no invasion into the vaginal vault or parametrium. Hysterectomy for the cure of cancer of the cervix is said to have been performed as far back as the year of 1600 A. D. Since that date the operation has been improved until the Wertheim plan of abdominal hysterectomy, published in 1895, which involved complete dissection of the parametrial lymphatics with the upper half of the vaginal tube, the uterus, tubes and ovaries. It was once regarded by all gynecologists as the best surgical procedure in the treatment of cancer of the cervix. It is a very difficult operation; it must not be confused with an ordinary hysterectomy. Wertheim's five year cures amounted to 43 per cent and this did not take into account the operative mortality of 16.6 per cent. Bonney, in his most recent publication, reports 41 to 42 per cent cures, with an operative mortality of 20 to 14 per cent and this must be taken from cure rate, finally having only 31 to 32 per cent cures in the operable cases. Taussig, in 1912, reported his operative mortality at 39 per cent; recently his mortality has been reduced, and his cure rate on 43 cases as 60 per cent with two operative deaths, all of these cases were in Group I.

Healey, Schmitz, Watson, Curtis, Ward and many leading American gynecologists all unhesitatingly state that surgery is not the method of choice in the treatment of cancer of the cervix. Nevertheless, there is still found an operator here or there who can not refrain from hysterectomy, despite the poor results which accompany it.

*Combined Surgery and Radium*: The recent publications of Gellhorn, Curtis and Taussig, wherein they advocate coincidental surgical exposure and radium therapy, certainly represents a surgeon's dream, a radiologic nightmare and reflects a lack of knowledge of the physics of radium therapy. Such combination of methods does not lead to the road of success.

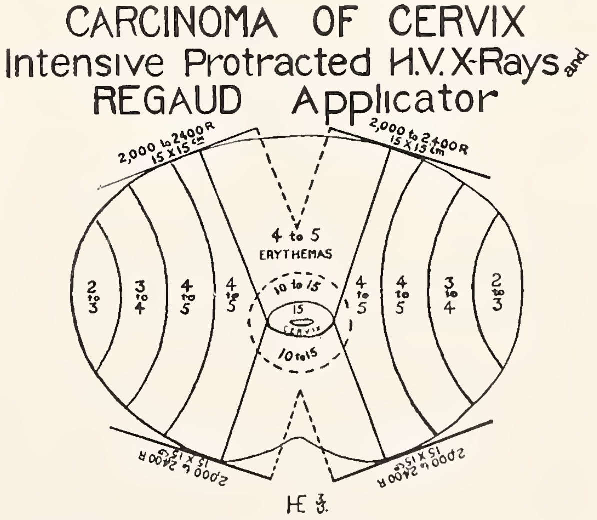
*Radiation Therapy*: In 1913, the medical literature began to contain articles from European centers reporting the splendid results which had been obtained from the application of radium in advanced cases of cancer of the cervix and vagina. So striking were the results that soon more favorable cases were given radium treatment and lastly the early cases which would have been regarded as suitable for the Wertheim operation were treated with radium. From here on the leading gynecologists throughout the world began to employ radium in the treatment of cancer of the cervix.

Healey found that certain factors were responsible for bringing about this rapid acceptance of radium in the carcinoma of the cervix situation, that carcinoma of the cervix, it was known, had the peculiar characteristic of remaining localized for a long time in or near its primary site in the pelvis, that it rarely threw out distant metastases but always recurred in the parametrial lymphatics or in the paravaginal tissues. It was at once evident that here was a lesion that could be irradiated at its primary site and also its adjoining lymphatics. Soon it was found out that carcinoma of the cervix was a disease which, in a large proportion of the cases, was quite radiosensitive.

Results of radium treatment of cancer of the cervix have shown a steady improvement during the last few years, due to improved radiation technic. Lacassange states that the percentage of cures in cancer of the cervix in the Curie Institute is 75 per cent for Group I; 50 per cent for Group II; 25 per cent for Group III; Schmitz, Group I, 84.7 per cent; Group II, 47.62 per cent; Group III, 19.16 per cent; Healey, early Group, 55 per cent; Heyman, Radiumhemmet, shows 16 per cent cures in inoperable and 44.4 per cent cures in the operable group.

The progress of radiation therapy of cancer of the cervix has been slow and orderly, each period has shown an attempt to deliver a maximum amount of radiation to the cancer cells with a minimum effect on normal tissue. With progressive improvement in radiation methods there has been observed a gradual increase in the per cent of five year cures. Today the leading cancer therapists and gynecologists are all striving for the same goal and, although showing slight variation in technic, they each embody the principle of delivering a lethal dose of radiation to the cervix, parametrium and pelvic glands by means of high voltage x-rays to the pelvis and adequately distributed, heavily filtered radium in the uterine canal and vaginal vault. A study of the methods employed by these eminent gynecologists is fitting evidence that adequate radiation does not mean merely inserting a capsule of radium in the cervical canal for twenty-four or forty-eight hours.

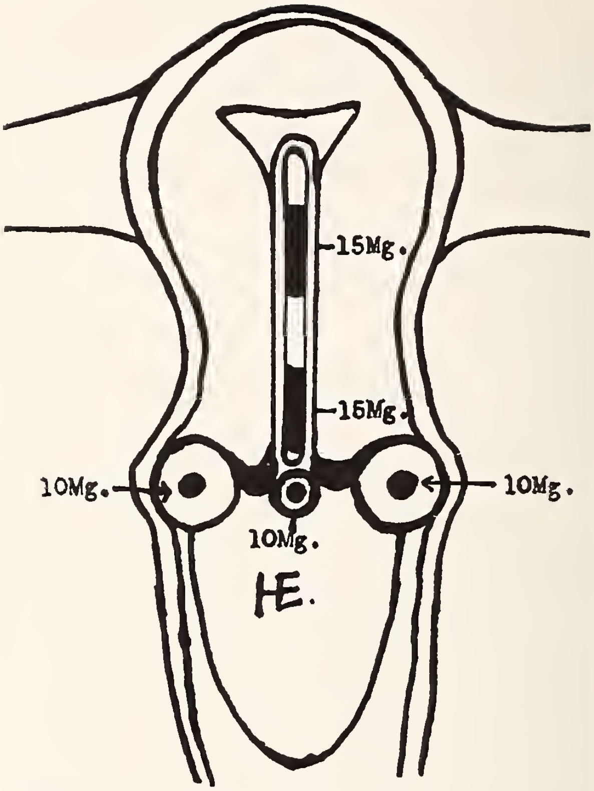
In the continuing search for improvement in the treatment of cancer of the cervix, any modification of method that holds out real hope of giving the patient a better chance of cure should be seriously studied. For some years past, world-wide attention has been drawn to the method of radium treatment developed by Dr. Regaud of the Radium Institute of Paris. This method is based on the purpose of delivering a dose of rays to each generation of cells at that stage of cell-division when the cell is most radiosensitive, and this is accomplished by protracting the delivery of the dose over from four to six days. In my own exper-



ience, I have been favorably impressed with this method.

It is impossible to lay down a routine method of radiation treatment for all cases of cancer of the cervix. The radiologist must be versatile enough with the weapons which he employs to vary his plan of treatment whenever the case demands, if best results are to be secured. In a large number of cases I have used a cycle of high voltage x-ray 1,000 r/o to each of four pelvic fields, administered in a period of five days, followed, usually immediately, by application of radium, giving a total of 6,000 to 8,000 mg. hours.

Radium applied in the uterine and cervical canal, against the cervix and in the vaginal vault, is not effective in destroying cancer cells more than a few centimeters distant from the site of application of the radium. It follows that the primary disease of the cervix is controlled or cured, but the parametrial disease is not controlled and the retroperitoneal lymphatics are not sufficiently irradiated. This fault in the old treatment has prompted Healey to advance a new plan of high voltage x-ray therapy in order to obtain greater intensity of radiation in the pelvis. With slight modifications, I have been using this method in the treatment of cervical cancer and have found it of inestimable value in stages I, II, and III. I employ four fields, two anterior and two posterior, each 15 cm. square, and administer 200 r/o to each anterior field on one day and to each posterior field on the next day. From ten to twelve such treatments are given to each field, a total of from 2,000 r/o to 2,400 r/o to each area. Usually immediately after the completion of this series of x-ray treatments, radium is applied in the vagina and cervix with a modified type of Regaud applicator, with filtration, with 1 mm. of platinum in the cervix and uterine canal and 1.5 mm. of platinum in the vaginal portion. The applicator is held securely in position by wide gauze packs well saturated with a solution of acriflavine 1:1000 and left in place throughout the period of application of the radium, which is from four to five days, a total of 7,500 mg. hours.



Modified Regaud type applicator showing distribution of radium.

The intensive protracted application of fractional x-ray doses to the pelvis is calculated to produce approximately four to five erythema doses in the parametrium, and, when supplemented by the radium application, from 10 to 15 erythema doses at the cervix and the surrounding 5 cm. of tissue. This type of intensive treatment is unsuited to the more advanced stage IV or even to some cases of stage III. Any attempt to use this method in these cases usually proves disastrous, because of the infection and anemia that are present and the poor general condition of the patient. The treatment must be well planned, for if it is carried through and fails, the door to all future irradiation is closed.

### IRRADIATION OF THE PARA-AORTIC LYMPHATICS

A review of the literature reveals that spread of lymph gland metastasis is manifested beyond the iliac crests, beyond the irradiated pelvis in approximately 10 per cent of cases, the lumbar aortic nodes and glands over the common iliac vessels are the glands involved below the diaphragm. A study of our autopsy material of a large number of patients dying from cancer of the cervix shows that many patients have had the disease cured or arrested in the pelvis or treated area and have died from the results of metastatic nodes above the brim of the pelvis. This has led me to employ an original thought, to irradiate the para-aortic lymphatic area. This series of high voltage x-ray treatments is usually instituted two months following the radiation to the cervix and pelvis, employing two anterior and two posterior fields from below the diaphragm to the iliac spine.

Palliative measures must be resorted to for patients who come to the cancer therapist with far advanced lesions. Patients in stage IV are in this group. The control of bleeding, attempting to minimize infection, and decreasing the foul discharge, with relief of pain is about all that may be expected. Radiation therapy in the form of external high voltage x-rays in careful, moderate dosage will do much towards arresting the bleeding and decreasing the discharge, as well as affording some relief of pain. Heavy radiation dosage is to be avoided if best results are hoped for, indeed many patients in stage IV do better without radiation. When there is severe pain due to metastasis to the pelvis and lumbar lymph nodes, morphine may not afford relief; then subarachnoid alcohol block should be tried. This form of treatment in my hands has given relief to a small group of unfortunates. It is well worth a try for if care is taken and cases are properly selected no harmful results have been observed.

| | Stage I | Stage II | Stage III | Stage IV | Stage V | Total |
|---|---|---|---|---|---|---|
| White | 13 | 30 | 31 | 26 | 18 | 118 |
| Colored | 11 | 28 | 50 | 93 | 0 | 182 |
| Epidermoid: | | | | | | |
| Ca. Grade 1 | 1 | 0 | 0 | 3 | 0 | 4 |
| Ca. Grade 2 | 13 | 36 | 42 | 68 | 5 | 164 |
| Ca. Grade 3 | 4 | 11 | 28 | 33 | 1 | 75 |
| Ca. Grade 4 | 1 | 0 | 1 | 5 | 1 | 8 |
| Ca. Not Graded | 4 | 8 | 7 | 8 | 3 | 30 |
| Adenocarcinoma | 1 | 4 | 3 | 2 | 0 | 10 |
| No Biopsy | 0 | 0 | 0 | 2 | 7 | 9 |

The foregoing table represents a study of 300 cases of cancer of the cervix treated during 1932-1935, showing race, stage of the disease and histologic grade of the tumor. No attempt is made in this study to evaluate five year cures. This series has been treated by methods indicated in text of this paper and sufficient time has not elapsed properly to evaluate results.

### SUMMARY

The complications of cancer of the cervix are numerous and are not discussed in this paper. Complications following application of radium have not been troublesome and the mortality has been nil, while the morbidity has been low.

### DISCUSSION

Dr. P. W. Winder (Shreveport): I am particularly happy to discuss Dr. Edwards' paper because I have had the privilege of seeing the splendid work he and his staff have been doing, and have personally examined a number of the patients they have treated and in this manner have seen the results. I am comparing his results with 315 that were carried out by the gynecological staff at the University of Michigan hospital.

I am particularly impressed with his results, not only from the mortality side but from the morbidity side. He has had a very low incidence of skin manifestations from irradiation, proctitis due to irradiation, or cystitis. He has never had a case of spontaneous fracture of the neck of the femur from irradiation. We are dealing with many patients who have a markedly lowered resistance which makes the morbidity side of great importance.

Early carcinoma of the cervix may be said to have no symptoms. Every female patient has a slight amount of vaginal discharge, but to call that a symptom is, to me, a fallacy. Cancer of the generative tract is the most common cancer of the female, and cancer of the cervix leads the list. We do not know which, if any, of the common cervical lesions is the true forerunner of the cervical cancer, but there are certain facts so well established that it is difficult to overlook. Thus it is generally agreed that cancer never begins in healthy tissue, that it is always local in its incipiency, and that there is always a precanerous stage, although this lesion cannot as yet be named.

If these things be true, and I believe they are, there is no excuse why every common lesion of the cervix should not be viewed with suspicion and treated until cured. It is only by recognizing these facts and seeing to it that every patient who consults us has or is made to have a healthy cervix that we can make headway in the prevention of cervical cancer. It is these simple means which are available for treating these conditions that make therapeutic vacillation out of the question.

The American College of Surgeons, at their annual congress, reported authenticated cases of 500 cures, and this number has now reached the total of 24,440. In the group surveyed at Michigan they estimated that if the knowledge of the cause and cure of cancer was utilized fully by the laity and by the medical profession, approximately 30 to 50 per cent of these deaths could be prevented. Their major emphasis was placed, in the control of this disease, on early diagnosis and early treatment, both of which were mentioned in Dr. Edwards' paper.

In regard to treatment, it is generally agreed that radiation therapy is the treatment of choice, even in the very early group of cancer of the cervix. A procedure frequently done in the massive reverting type of cervical cancer is to cone out the cauliflower-like mass and then apply radium, for the reason that this gives better irradiation. In my short experience, this has only caused detrimental results and is practically no good.

I think Dr. Edwards mentioned an important item when he said you cannot make or give a standard treatment in the use of radiation therapy for the treatment of cervical cancer. Each patient presents a treatment problem and, as he mentioned, this treatment is based on the physical condition of the patient, the extent of the disease, and the cellular type of the neoplasm.

Dr. William R. Mathews (Shreveport): This report of Dr. Edwards, like most clinical studies on cancer of the cervix, emphasizes the necessity for early diagnosis. Eighty per cent, or more, of patients with cancer of the cervix are in a relatively advanced stage of the disease when a positive diagnosis is made. This means, of course, that the great majority of patients with cancer of the cervix, when seen by the physician who makes the diagnosis and institutes adequate treatment for the disease, fall into the group receiving palliative results and not cures.

The clinical determination of the extent of disease in its early stage faces limitations and is only approximately correct. It is a common experience of the physician treating cancer of the cervix to find among his cases adjudged clinically as stage I, clinical evidence of pelvic and distant metastases several months, or years following cure of the primary lesion. This means that cancer cell emboli were already in the intrapelvic nodes and the parametrial tissue but could not be detected. In outlining treatment, one must anticipate this possibility, however early the cervical lesion may appear.

If we are to make any significant advance in the treatment of carcinoma of the cervix, as well as cancer anywhere in the body, the diagnosis must be made in the early stage of the disease. This must be done in the majority of cases when a clinical diagnosis of cancer is not definite, but requires a biopsy to establish a positive diagnosis.

# PREOPERATIVE RADIATION OF CANCER OF THE BREAST*

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The mortality rate for cancer of the breast varies in different parts of the United States, the larger percentage of five-year clinical cures being obtained where the disease is treated by experienced physicians. Even where the best results are reported the mortality rate still remains high, and there is but little doubt that it can be materially reduced through a better understanding by the medical profession of the mode of application and effect of irradiation therapy.

While radical amputation is the treatment most often used in operable cancer of the breast, the conjoint use of radiation therapy, preoperatively and postoperatively, has proved of great value, and is now the most favored form of treatment of cancer of the breast.

The use of radiation therapy preoperatively in cancer of the breast is apparently not well understood by members of the medical profession in certain localities. That it does play an important part in the increased number of five-year clinical cures is known generally by the radiological profession.

Pfahler[1] has shown that when preoperative radiation was given to a group of patients suffering with cancer of the breast, 62 per cent were living after three years, and 50 per cent were living after five years. Quick[2] believes that preoperative radiation is probably of greater relative value than postoperative radiation. Soiland[3] has forcefully expressed himself in regard to the beneficial effect of preoperative radiation; in fact he states that it is the first line of offense in the treatment of carcinoma of the breast and that this form of therapy should be used in all cases.

On the other hand, we find some prominent physicians who, while advocating this form of therapy, have assumed a more conservative attitude toward its use. For instance, Cutler[4], of the Tumor Clinic of the Michael Reese Hospital, Chicago, has recently stated that he utilizes preoperative radiation in selected cases as follows: (a) in very young women in whom the clinical setting is such that it leads one to suspect the existence of a highly malignant anaplastic carcinoma, a type in which the results of surgery alone have been extremely unsatisfactory, and (b) in lesions of borderline operability. He further states that "the circumstances that appear to favor the use of preoperative radiation are as follows: (a) the fact that surgery alone yields only 30 per cent five-year cures; (b) the probability that the mechanical trauma incident to the surgical procedure disseminates cancer emboli, and that this danger might be diminished by the use of preoperative radiation; (c) the existence of a small but definite proportion of cancers of the breast which are radiosensitive, with the probability that these types are also highly malignant."

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The objections offered by Cutler to the use of preoperative radiation can be summarized as follows: "(a) the possible dangers of dissemination during the waiting period between the first radiation and the surgical removal of the breast; (b) the increase in difficulty of the surgical procedure and interference with postoperative healing if adequate radiation is used; (c) the relative radioresistance of mammary cancer to doses of radiation which will still permit the safe execution of the surgical procedure."

Adair[5], attending surgeon of the Memorial Hospital, New York City, recently published an interesting article on preoperative irradiation in primary operable cancer of the breast. In his article, he apparently does not agree with the objections offered by Cutler, namely, "the possible dangers of dissemination during the waiting period between the first radiation and the surgical removal of the breast." Adair expresses himself very convincingly in this report. "If preoperative radiation is effective, it is necessary to allow two months as a mimimum after the completion of the treatments for radiation to become fully effective in producing the desired tissue changes. The direct killing effect on the more sensitive cancer cells, together with the slower development of fibrosis and endarteritis and other results of radiation, consumes a period of at least eight to ten weeks. Many clinicians will object to this delay, believing that the rate of tumor growth exceeds the rate of tumor starvation and strangulation secondary to radiation. This view is understandable, but in our study it is obvious that the rate of tumor destruction far exceeded the rate of tumor growth, while the radiation was being carried out. This period of delay therefore seems justified. We are fully cognizant of the opinions of some who believe that after a diagnosis of cancer is made, immediate operation is imperative."

Certain interesting observations were made by Adair regarding preoperative radiation of operable cancer of the breast. In this regard, he says, "This research here presented shows that one group of mammary cancer cases, the operable, heretofore generally held to be a surgical problem only, may now be considered also a problem for the radiologist".

In this study of preoperative radiation effects, Adair says, "It must be stated in the beginning that in every instance there was a positive biopsy report of cancer of the breast. We recognize that there are those who consider that aspiration biopsy material is not as satisfactory as biopsy material obtained by incisional methods. However, we make no apologies for this form of biopsy so freely used in our institution. It is a method satisfactory to our pathologists—Dr. Ewing and Dr. Stewart. Its interpretation requires special study and great experience along these lines. In the hands of the competent, this method is steadily gaining in general acceptance.

"Without this method of biopsy it would have been impossible to make this study: first, because physicians will not accept the clinical diagnosis of others on a case of cancer; second, and especially, because the recent scar of the incisional biopsy breaks down under the heavy radiation delivered, making such full radiation impossible. Aspiration biospy is, therefore, an important step in the work here reported."

Adair's study is based on 117 cases of operable mammary cancer. Each case had: (1) positive biopsy; (2) preoperative irradiation; (3) followed two or three months later by (4) a radical mastectomy and (5) careful tissue studies. Of this number, 65 cases were treated through five portals by the fractionated dose method, using the 200 kv. roentgen machine, giving 300 r daily to each of two portals. Fifty-one cases were treated similarly using the 4 gram radium element pack and giving 8,000 mc-hr. to one portal per day. The portals used in both series were one tangential to the breast medially and one tangential to the breast laterally, thus cross-firing the breast lesion from two directions. The axilla was cross-fired through three ports; (a) axilla and supraclavicular anteriorly; (b) axilla direct, (c) axilla and supraclavicular posteriorly.

Adair says, "The clinical results of therapy were tabulated thus: (1) breast tumor same size; (2) breast tumor reduced in size; (3) residual thickening only; (4) breast tumor entirely gone. Of the 18 cases treated by roentgen radiation giving 1,800 r per portal, there was not one instance in which the tumor remained the same size as originally described. In other words, radiation, if given in fairly large doses, practically always causes reduction of the size of the tumor in varying amounts, depending on the type of pathologic process present. Anaplastic carcinoma usually completely disappears, while colloid carcinoma changes very little in size. Of these 18 cases clinically examined, there was reduction in size or disappearance of the tumor in all cases." He reports that with the treatment used, he obtained five-year clinical cures in three out of four cases when the disease is confined to the breast alone, and one in four when the axilla is involved. Irradiation greatly softens the breast tumor so that at times it becomes extremely difficult for the clinician to be sure that any tumor remains. The characteristic hardness of the cancer entirely disappears so that the breast seems of the same consistency throughout.

Adair says further: "When the amputated breast is examined in the laboratory, the pathologist has a new and difficult problem locating the tumor or its residual scar. It usually becomes necessary to locate the original site of the tumor by cutting the breast in small parallel slices. Ewing and Stewart frequently locate the original site in difficult cases by noting: (a) a sclerosed hyalinized area; (b) a puckered scar, or (c) a few yellowish streaks. The consistency of this area is soft and differs from untreated carcinoma of the breast. A section taken from this type of material sometimes shows no residual cancer; at other times only a few clusters of atrophic degenerating cancer cells so badly damaged that their viability is in great doubt; while, on the other hand, the microscopic study may reveal fully stainable and possibly viable cancer cells. It is difficult for the pathologist to be correct on his gross study of the breast material and the axillary contents. Gross and microscopic tissue studies require that one have experience in this special field of radiated tissue".

Apparently there are differences of opinion in regard to preoperative radiation and its interference with surgical procedure which conflict with Cutler's opinion. May [6] mentions that preoperative radiation does not make subsequent operative procedure more difficult or dangerous and states that Jungling in a series of such cases has shown this to be true.

The proponents of preoperative radiation maintain that if radiation therapy applied postoperatively is capable of destroying residual cancer cells, it should have even more effect on such cells when given as a preoperative measure. The late Joseph Colt Bloodgood[7], a strong exponent of preoperative radiation for cancer of the breast, shortly before his death sent to us a report of three interesting cases of breast carcinoma treated preoperatively by radiation therapy. He proves that the contention of those who advocate preoperative radiation is as vulnerable as the arguments of those who favor postoperative radiation. One of the three cases reported had received preoperative radiation therapy three months before a complete operation for cancer was performed. Culture of the tissue taken at operation showed a definite growth of living cells, but the glands microscopically showed no involvement. The other cases had received adequate preoperative radiation with a negative culture growth. Bloodgood stated that "apparently we have sufficient evidence to demonstrate that the moment radiation starts on a breast cancer and its metastatic area, there is no further growth of cancer cells in the cancer nodule, and no growth of cancer cells in the metastatic nodules." He also stated that "when women are properly instructed to report for examination within two weeks after the appearance of a lump in the breast and when all receive preoperative radiation, if there is any sign of malignancy, the danger of cancer of the breast will become more and more insignificant."

While we appreciate that all competent radiologists are familiar with the usual number of fields to be radiated, we would like to call attention to one of these fields which is extremely important, but is usually given perhaps less attention than any of the others. We have in mind the supraclavicular area. Leddy and Desjardins[8] have pointed out that frequently carcinoma of the breast metastasizes to the supraclavicular lymph nodes. This they consider as a bad sign because it seems to precede metastasis to the liver and lungs.

It is to be hoped that with a better understanding by the medical profession of the efficacy of this mode of treatment, breast carcinoma cases will be given a better chance for recovery.

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# POSTOPERATIVE PULMONARY COMPLICATIONS*†

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Within the last fifteen years, and more specifically within the last ten years, increasing attention has been paid to the importance of postoperative pulmonary complications. In spite of this increased emphasis, however, they are still occurring with monotonous regularity. The incidence is variously estimated. Lee in 1924 estimated that one in every 50 surgical patients is likely to develop such a complication, and that one in every 150 or 175 patients who develops it will die, a mortality of approximately 0.6 per cent. Eliason, in a comprehensive study in 1932, estimates that pulmonary complications occur in from 1.5 to 3.5 per cent of all surgical cases, and that the mortality varies from 3.3 per cent to 0.7 per cent. That means, as he goes on to explain, that approximately one in every 200 patients submitted to surgery will die of this complication. The importance of the subject, therefore, is self-evident.

It is not too much to say that the whole conception of postoperative pulmonary complications has changed in the last fifteen years. In the first place, the anesthetic is now regarded as of much less importance. Formerly all postoperative pulmonary complications were attributed to inhalation anesthesia. Now thoughtful surgeons know that such mischances are quite as likely to occur after one variety of anesthesia as after another, if, indeed, they are not more frequent with the spinal and regional varieties. They know, too, that in many cases the anesthesia cannot be blamed at all. Thoughtless surgeons, of course, still have a tendency, as Pemberton expresses it, "to attribute to the anesthetic or to its mode of administration any unusual complication which cannot be readily explained otherwise." In the second place, the incidence of pulmonary complications after operation has almost invariably shown an increase when surgeons have devoted themselves to the subject, though with the increased incidence has usually gone a decrease in the mortality. The explanation is not difficult: better diagnosis and more careful observation explain the increase in incidence, better prophylaxis explains the decrease in the mortality. In the third place, in spite of the point we have just made, that better prophylaxis has brought about a decrease in the mortality, the state of affairs is still highly unsatisfactory. No single method, no combination of methods, has proved really effective in reducing the incidence of such complications. Under certain conditions, with certain types of patients, and with certain types of operation, the incidence of postoperative pulmonary complications has shown practically no decrease, even in the hands of men who have paid constant, careful attention to the subject, and the mortality in such cases has, as was to be expected, remained almost what it was.

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*Read before the Orleans Parish Medical Society May 25, 1936.

†Based on a study of 3364 abdominal operations from the records of Charity Hospital in New Orleans.

Postoperative pulmonary complications fall into three general groups: the infectious, which includes pneumonia, lung abscess and similar conditions; the atelectatic, which includes both the massive variety of collapse and the lobular and lobar varieties; and the vascular, which includes infarction and embolism. Acute pulmonary edema is frequently classed with the latter group, but it is best regarded as an incidental complication, so to speak, since it is really only another manifestation of cardiac failure. It is frequently the main contributing factor in the fatality, but it is not, strictly speaking, a pulmonary complication.

The infectious group of complications is so clearly understood that little attention need be paid to it, except to point out once again that it is considerably smaller than it once was, not because the actual incidence is less but because methods of diagnosis have been so greatly improved. It might be added, too, that in this group of cases the etiologic factor is very often a pre-existing infection of the respiratory tract. No amount of later solicitude, as Wharton says, can atone for operating on a person with a cold, bronchitis or some similar condition, and this same author emphasizes the importance of waiting for complete recovery, which does not take place, he reminds one, in two or three days.

The other two groups of complications need more extended consideration. The vascular group, which is divided into two sub-groups, the infarct group and the embolic group, is not, in one sense, a pulmonary complication at all. It is a vascular accident, resulting from surgery it is true, and localized in the lungs, but not due, strictly speaking, to a pulmonary condition.

In pulmonary infarction the symptomatology, clinical course and outcome depend upon the extent of pulmonary involvement. This condition was unknown, or, more correctly, unrecognized until 1920, when Wharton of Johns Hopkins detected it and comprehended its significance. During a study of phlebitis in gynecologic patients he observed that a number of these women developed pulmonary conditions diagnosed as pleurisy or pneumonia, that some of them had repeated attacks, and that a small percentage of them eventually died of embolism. Studying these patients carefully, particularly at the postmortem table, he was able to demonstrate that the condition from which they were suffering was actually not pneumonia or pleurisy but pulmonary infarction, the result of showers of emboli which are the constant result of all operative procedures involving the blood vessels. His clinical observation showed him that while the complication usually occurred from the fifth to the fourteenth day after operation, it was always more serious if it occurred during the first week, before the irritation of the anesthetic had disappeared, before the patient had regained her strength, and when, as was later demonstrated, the atelectasis and hypoventilation which follow so many surgical procedures were at their height. In such circumstances, as he pointed out, pulmonary infarction is a serious matter and may even terminate in lung abscess. Eighty per cent of these cases occur in the right lower chest. The clinical picture of pain, a rise in temperature and pulse-rate, sometimes blood-tinged or frankly bloody sputum, differs entirely from the clinical picture of pneumonia, with its high fever, distressing cough, and purulent expectoration. The physical findings are also different, particularly in the early case, and roentgen ray shows the typical triangular shadow of an infarct. Recovery is the rule in mild cases and even in the more severe cases is not a fatal complication unless embolism occurs or it goes on to lung abscess.

The massive type of embolism is so well known that a description is scarcely necessary. There is no more dramatic happening and no greater tragedy in surgery than this bolt from the blue which usually occurs in patients whose convalescence has been smooth or has been marked by little more than a mild rise of temperature or perhaps an associated phlebitis. A few cases are on record in which the heroic measure of embolectomy has saved the patient's life, but the usual outcome is death even before surgery can be attempted. It is a tragedy which, as Robertson says, has defied all efforts to foretell it, to prevent it, to explain its cause, or to alter its outcome.

Concerning the atelectatic group of pulmonary complications after operation a great deal has been learned. This is a condition which was practically unknown fifteen years ago, but which now is believed to be the most frequent of all postoperative pulmonary complications, and which is present, either actually or potentially, after most abdominal operations, particularly after most upper abdominal operations. The studies of Graham, Muller, Overholt and Pendergrass, Sise, Mason and Boland, Churchill and McNeil, and others too numerous to mention have shown very clearly that after operations on the abdomen, and particularly after operations on the upper abdomen, definite anatomic changes occur, chiefly a marked elevation of the diaphragm, frequently with fixation, particularly on the right side; a marked reduction of chest expansion, with narrowing of the intercostal spaces, so that respiration is largely carried on in the anterior and upper portions of the lungs and there is a marked hypoventilation of the posterior and lower lobes; and, as a result, a marked reduction in the vital capacity of the lungs, which varies from 20 to 70 per cent after lower abdominal operations and from 50 to 80 per cent after upper abdominal operations (Churchill and McNeil).

In addition to these anatomic changes, other factors are operative. There is an increase in bronchial secretion after operation, the cause and mechanism of which are not clearly understood. There may be a pre-existing infection in the air passages. The tight dressings and abdominal binders which are so frequently applied further compress the lower chest. The patient tends to restrict his breathing voluntarily, to spare himself pain. The tendency to quiet, shallow breathing is increased by the use of narcotic and sedative drugs. In short, as one considers these various factors, the wonder is not that the vital capacity is altered in some cases after operation but that it is not altered in all.

In the massive variety of atelectasis, as Snyder points out, the picture is one of catastrophe. The onset is usually within forty-eight hours of operation, though it may be later. There is a sudden elevation in temperature, pulse and respiration. Dyspnea is present and sometimes cyanosis. Frequently the patient makes futile efforts to cough. The facies is anxious. There is severe pain in the chest or upper abdomen. There is limited expansion over the affected area, often with retraction of the interspaces, and increased expansion of the opposite side. The heart is displaced, sometimes to the right chest. The physical findings, as Hawks and Klotz emphasize, vary from hour to hour, and this variability is their outstanding characteristic. In the milder types the symptoms are the same, but correspondingly milder, and so are the physical findings, and, since the areas of involvement are scattered and limited, the condition may be entirely overlooked unless it is diligently sought for or unless the roentgen ray is employed. Indeed, it is to the use of the roentgen ray that the apparently increased incidence of atelectasis is due. There is small doubt that a large proportion of the postoperative complications formerly diagnosed as pneumonia are actually due to this condition. King, for instance, points out that in his own series only one-fifth of the postoperative pulmonary complications were attributed to atelectasis in 1928, whereas in 1931, after he had begun to look for the condition, two-thirds of the cases were so recorded. This same author by the way, points out another important consideration, that it is quite possible for the atelectasis to persist after the causative bronchial occlusion has been relieved, in which case the signs change from those of dullness, absent or much diminished breathing, absent or diminished voice, and diminished whispered and tactile fremitus, to those of consolidation.

We realize, as King has emphasized, that in the study of postoperative pulmonary complications personal observation is far more accurate than a study of hospital records. But at that, a study of records can still be helpful, and for that reason we have undertaken such a survey in the New Orleans Charity Hospital, confining our investigation to abdominal operations, since other observations have already made clear the relative insignificance of such complications in extra-abdominal surgery.

We reviewed in all 3,364 abdominal operations, of which 1668 were performed for upper abdominal conditions and 1696 for lower abdominal conditions. In the whole group there were 141 definite pulmonary complications, 4.19 per cent, of which 81 were in the upper abdominal group, an incidence of 4.85 per cent, and 60 in the lower abdominal group, an incidence of 3.35 per cent. This is a less striking difference than is usually apparent in the two groups. But the difference in mortality is very striking. The mortality for the whole group of 141 cases is 37, 26.2 per cent. The entire mortality, however, occurred in the upper abdominal group of 81 cases, which gives a mortality of almost 47 per cent for that group, against a zero mortality for the lower abdominal group. It might be added that autopsy was done in 23 of these cases, and that the pulmonary complication was established either as the cause of death or as the most important contributing factor.

In the upper abdominal group 920 patients were operated on under spinal analgesia with 37 complications, an incidence of 4.02 per cent, and 130 under spinal analgesia plus some supplementary type, with 11 complications, an incidence of 8.46 per cent. Five hundred forty patients were operated on under inhalation anesthesia with 24 complications, an incidence of 4.44 per cent, and 78 under local or splanchnic analgesia with 9 complications, an incidence of 11.53 per cent.

In the lower abdominal group there were 1127 spinal analgesias with 40 complications, an incidence of 3.4 per cent; 373 inhalation anesthesias with 9 complications, an incidence of 2.41 per cent; and 165 local analgesias with 11 complications, an incidence of 6.66 per cent. It is clear from these figures that the use of anesthesia other than the inhalation type is no protection whatsoever against the development of pulmonary complications.

Pulmonary complications of a mild type include lobular atelectasis, with or without small areas of pneumonitis, bronchitis, and small areas of pneumonia. Complications of a severe type include bronchopneumonia, massive collapse of the lungs, pulmonary infarction and pulmonary embolism. Looking at the cases we have studied from this aspect, we may say that in the lower abdominal group only 14 patients had severe complications, against 44 mild ones, while in the upper abdominal group there were 60 severe complications, 37 of which were fatal, and 21 mild complications.

Seventy-four of these complications occurred during the fall and winter, 67 during the spring and summer, which is not a significant seasonal difference. The difference in the mortality, however, is decidedly more striking. Twenty-three of the 74 fall and winter cases terminated fatally, 31.8 per cent, in contrast to 14 fatalities in the 67 spring and summer cases, 20.7 per cent. The mild, sub-tropical climate of New Orleans is apparently no protection against the development of pulmonary complications or their fatal outcome.

One or two other considerations might be mentioned. The average age of the patients in the lower abdominal group was 35.2 years, against an average age of 46.5 years in the upper abdominal group. The average age of the patients who died was 51.8 years. Only 22 females developed pulmonary complications after operation, against 119 males, although the death rate was considerably higher in the females than in the males, 45 per cent (10 cases) against 22.6 per cent (27 cases). Among the deaths, furthermore, 24 followed operations on the stomach, and 11 on the gallbladder; the other 2 followed a hernioplasty and an intestinal operation respectively. These findings are in accord with the findings of other observers. There seems no doubt that pulmonary complications are peculiarly likely to develop in individuals advanced in years, in males rather than females, and after operations on the stomach.

A discussion of prophylaxis in this series would be useless, partly because there was no systematic attempt at it, partly because the method cannot be properly evaluated without a control series in which prophylaxis was not practised. King, who has studied the subject very thoroughly, and who has studied prophylaxis under the proper conditions, says that at the present time there is no completely satisfactory solution of the cause and prevention of pulmonary complications. He may have no solution, but his conclusions are eminently sane and practical. "In my own case," he says . . . "if I were to be the unfortunate male, with a perforated gastric ulcer, I should hope that the perforation would occur at a time when neither I nor my attendants had a respiratory infection. I should hope that the surgeon would be both rapid and gentle. I should not worry too much about the type of anesthesia, and my statistical mind, at least, would not be disturbed if I saw an ether cone. Whatever type of anesthesia is selected, however, I hope that the surgeon will pick the best anesthetist available and that he will do his work with all possible skill. Following the operation, I shall be content without carbon dioxide, and I shall be perfectly willing to have the surgeon put his faith in the best of postoperative nursing, including frequent postural change." That is the well considered opinion of a man who knows the subject as well as any of us, much better than most of us, and as matters stand now, there seems little or nothing to add to his conclusions.

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## DISCUSSION

Dr. Edgar Hull (New Orleans): This subject, which Dr. Veal has discussed so adequately, is an important one, since all too frequently pulmonary complications nullify the benefits that should accrue from carefully performed abdominal surgery. My knowledge on the subject is limited, being considerably less than that of the essayist, and I can see no reason for reiterating the practical suggestions Dr. Veal has made nor the logical conclusions he has reached.

In my opinion the factors which lead to postoperative bronchitis and pneumonia on the one hand, and atelectasis on the other, are much the same, namely, stagnation of secretions in the bronchi and lungs and alteration of their consistency and amount. If infectious organisms are present in the respiratory tree in considerable numbers, it would seem that these factors operating in relatively minor degree might lead to the development of bronchitis or pneumonia, while in the absence of these organisms nothing untoward would happen unless stagnation were more marked, in which case atelectasis, resulting from bronchial occlusion, would occur.

The causes of this stagnation undoubtedly lie in a failure of the normal mechanisms whereby the bronchial tree is cleared of the secretions of its glands, and whereby the character and amount of this fluid is so regulated that it is capable of removal.

Fluid is removed from the bronchial tree in health and in disease by three means: First, the movement of the cilia of the bronchial mucous membrane; second, cough; and third, postural drainage. The direction of the bronchi is such that the posterior and inferior portions of the bronchial tree get little or no postural drainage. Ordinary respiratory movements apparently play a minor part in cleansing the respiratory tree.

The amount and consistency of the bronchial secretion is regulated by the effect of parasympathetic and sympathetic nerve fibers upon the bronchial glands, the former presumably stimulating the glands to produce a thin serous secretion, the latter, a viscid mucous substance.

Following operations two of these mechanisms for cleansing the bronchial tree may be largely inhibited—cough, because of the pain it causes and because of the effect of large doses of sedatives; and postural drainage, because the patient lies quietly on his back most of the time. If, because of chronic bronchial disease, the ciliary function is largely lost, the third mechanism is inoperative. Thus we see that after any major operation, particularly in persons with long standing bronchial affections, conditions which lead to stagnation in the respiratory tree are present.

These conditions alone, however, are not responsible for any considerable number of postoperative pulmonary complications, since they are present after many other surgical procedures other than laparotomy. The elevation of the diaphragm and immobilization of the lower part of the chest, which is undoubtedly due to a viscero-somatic reflex arising from irritation of sensory fibers of the phrenic and lower intercostal nerves, may be concerned, but I am inclined to minimize the importance of these events because of the apparently insignificant role respiratory movements play in the removal of secretions from the bronchi.

The principal precipitating factor, therefore, would seem to be alteration in the secretion of the bronchial glands, either in its amount or viscidity. Such alterations are known to occur following laparotomy but apparently not following other operations. The cause of this phenomenon is undoubtedly a viscero-visceral reflex, but its pathways are not definitely known. Pottenger is inclined to believe that both pathways of this reflex are in the vagus, and that the effect of the reflex is to produce constriction and shortening of the bronchi and increase of secretion. It might well be, however, that its afferent pathway is over the phrenic and its efferent over the sympathetic, the result being the secretion of a very viscid secretion, difficult to remove, by the bronchial glands.

These theoretic considerations as to the cause of postoperative pulmonary complications would tend to emphasize the following measures as being important in their prevention and treatment:

1. Minimal trauma by the operator.
2. Frequent change of position after the operation, the patient lying on his left side a great deal. Elevation of the foot of the bed an hour or two each day.
3. Morphine in minimal doses to assure reasonable comfort for the patient.
4. Perhaps the avoidance of atropine postoperatively; although this may "dry" the secretions, it may also render them more viscid.

Purely on theoretic grounds, and without any practical experience to substantiate it, my opinion is that these measures would probably prove more valuable than deliberate deep breathing on the part of the patient, or the hyperventilation induced by carbon dioxide inhalation.

Dr. I. I. Lemann (New Orleans): I do not think this very thoughtful paper should go without further discussion, particularly by the medical man who is so often called upon to debate with the surgeon the situation after an operation. In former days, the internist was called to see a patient some days after operation. The patient had fever, cough, and signs of consolidation in his lungs. The verdict was naturally pneumonia. As Dr. Veal has pointed out, that is by no means certainly the case, probably less often the case. We are stopping to think more than twice in formulating the diagnosis of pneumonia. We rather think something else is happening than pneumonia because of the phenomena presented to us. It is not that we have now at our disposal methods that are going to lead to a prompter cure, prompter relief than before, but it is the fact that we are recognizing the real condition. That is important because we are now realizing what is going on and may look in the future to perhaps better methods of prevention, and perhaps even better methods of treatment than are at our command now.

It is because of this reflection that I have ventured to repeat and reinforce what Dr. Veal and Dr. Hull had to say, not that I added anything new to the paper, but because I think it is extremely necessary that all of us, surgeons and medical men, realize the importance.

Dr. Urban Maes (New Orleans): Formerly inhalation anesthesia was blamed for all postoperative pulmonary complications, but as Dr. Veal has shown in this study, they are just as frequent after other types. It is now very generally agreed that the old idea is wrong and that other factors unrelated to the variety of anesthesia determine the incidence of postoperative pulmonary complications.

The preponderance of males over females in the matter of postoperative pulmonary complications is striking. For my own part, I believe the explanation is two-fold, more advanced age, plus the fact that most of these patients were smokers and probably had a bronchitis to start with.

Certain mechanical factors are also important. For one thing, we are not careful enough about postoperative dressings. The habit of plastering adhesive all over the upper part of the abdomen, which is a very general habit among internes, is bound to restrict the respiratory excursion of the chest and predispose to various pulmonary complications. In the second place, we have gotten away entirely from the transverse incision. The longitudinal incision narrows the lower part of the chest and reduces the respiratory capacity, whereas the transverse incision either does not affect it at all or actually increases it. In the third place, we are not sufficiently careful to move our patients around in bed or to see that they move. Movement is the best method I know of preventing pulmonary complications, and it is particularly important in these days when preoperative medication involves the use of drugs that keep the patients asleep for a long time afterward. As soon as the patient is able, he should be instructed to do his own moving. I believe it was Dr. Gamble of Mississippi who devised a sort of bicycle arrangement to be attached to the foot of the bed; the patients pedaled vigorously, and the incidence of postoperative complications was lessened.

Finally, I should like to call attention to the fact that the habit of attributing all sudden postoperative deaths to pulmonary embolism ought to be done away with. Actually, embolism is really infrequent. At my suggestion Dr. Ralph Lampert has just studied a series of 309 autopsies from Charity Hospital, with the idea of determining the incidence of postoperative embolism, and his figures are rather interesting. Embolism was the cause of death in 3 cases and was diagnosed as the cause of death in 5 cases. The significant thing, however, is that the cases did not overlap. Embolism was not the cause of death in any case in which it was diagnosed clinically and was not diagnosed clinically in any case in which postmortem examination proved it to exist. My own idea is that other studies like Dr. Lampert's would probably show the same state of affairs.

Dr. James D. Rives (New Orleans): I want to emphasize one possible source of postoperative complications, aspiration of infected material from the mouth, nose, and pharynx, and to recount my own experience of the past year.

About a year ago, having a case of gastric obstruction of some duration, I had a tube put in the stomach through the nose three days before operation and by continued irrigation and aspiration of that stomach got it quite clean. I left the tube in during operation. I was so pleased because the stomach was so clean that I made this plan my routine practice. The number of cases is not very large, but I am quite sure that 30 per cent of these patients have had pulmonary complications, three of them serious, two of them fatal, and I am now disposed to believe that the retention of the tube for a long time in the nose and pharynx set up an irritation, or lighted up an irritation already present, and contributed to the infectious complications in the lungs.

Dr. J. Ross Veal (Closing): In reply to Dr. Maes' question about the number of vascular complications in this particular series, I would say that we noted four deaths from infarction. Of these two were diagnosed at autopsy, and one by roentgen ray. The fourth case, in which death was considered due to pulmonary embolism, was not autopsied.

We were particularly interested in our study of these records to determine the frequency of postoperative pulmonary complications in this mild climate as compared with their incidence in colder climates. We found the incidence almost the same, though the incidence during the warmer months of summer was decidedly less frequent than during the colder months of winter.

It should be stressed, in conclusion, that complications which follow upper abdominal operations are far more serious than those which follow lower abdominal operations and carry a higher mortality rate.

# TREATMENT OF CHRONIC VARICOSE ULCERS OF THE LOWER EXTREMITIES*

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Varicose ulcers of the lower extremity, are cutaneous defects associated with varicose veins. They vary in size from a few millimeters in diameter to areas which completely encircle the leg and occasionally attain a width of 4 to 5 inches. These ulcers are usually shallow with sloping edges and the appearance of their bases is dependent upon the degree of chronicity, the amount and type of infection, the type of varicosities, the associated edema, fibrosis, and the underlying tissue changes which are present. Edema is usually present. Frequently there is also an excessive dryness of the skin surrounding the ulcer which is caused by an eczema and associated with a widespread pigmentation.

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Varicose ulcers are more common than any other type of ulceration of the lower extremity. Thomas[1] has estimated that about 90 per cent of chronic leg ulcers are of the varicose type. This percentage varies with geographical location and is probably lower in those areas where the incidence of syphilis is high.

Varicose ulcers are more frequently found on the left leg than the right and the most frequent site is above the internal malleolus. Goodman[2], in an analysis of 64 cases of chronic ulceration of the lower extremity, found 26 patients with chronic ulceration of the left leg, 25 patients with the right leg involved, and 13 patients with both legs involved. In patients with ulcers on the right leg the lesions were clinically of the luetic type. Thirteen patients of this latter group showed positive Wassermann reactions, two were anticomplementary, and in 10 the reaction was negative. In the 26 patients with ulcers on the left leg, it was not possible to make clinical diagnosis of syphilis. Nineteen patients had negative Wassermann reactions, one an anticomplementary, and two slightly positive reactions. In the group with ulcers on both legs, a clinical diagnosis of syphilis could not be made. An analysis of this small group of cases showed that chronic ulceration of the right leg was more likely to be syphilitic than a similar ulceration involving the left leg. Negative Wassermann reactions were found in 73 per cent of the cases with ulceration on the left leg, whereas only 40 per cent of the cases with chronic ulceration of the right leg had similar reactions.

The causes of varicose ulcers are the cutaneous and subcutaneous changes occurring because of improperly treated varicose veins. Steubner[3] considers standing posture and endocrine insufficiency as two important factors in the development of varicosities. DeTakats[4] states that the hereditary factor is important in about 65 per cent of all cases. In quoting Curtis[5], he states that many patients suffering from varicose veins have familial predisposition to varicosities. These frequently show varicosities of the septum, small cutaneous naevi, spider-like telangiectases, and vascular fragility to the point of developing ecchymoses from the slightest injury, and yet the patients have normal bleeding time, coagulation time, and platelet counts. Ochsner[6] contends that varicose ulcers are the result of venous stasis, with its resulting anoxemia, local acidosis, and stagnation of metabolic processes in the skin and subcutaneous tissue. An analysis of this stagnation resulting from chronic varicosities shows a tremendous concentration of metabolites; there is an increase in $CO_2$ content (3.9 per cent by volume) with a corresponding decrease in $O_2$ content (4.84 per cent by volume); a decided increase in N. P. N. content (two to three times that normally found), and a local acidosis with a decrease in arterial supply as determined by the histamine test. Trauma to the leg with the above changes usually furnishes the necessary tissue damage for the entrance of bacteria and, due to the diminished blood supply, stagnation, and low resistance of the part, infection with an associated lymphangitis and phlebitis develops. Chronic ulceration with its subsequent changes is the natural sequel. Mason[7] considers that there are two primary factors in the production of these ulcers: (1) improper drainage and (2) infection. He states that fluid escaping from the blood vessel can return only through the lymph channels. The deep lymph vessels of the leg are few in number, originate from the muscles, and follow the deep blood vessels. The superficial lymphatics lie below the integument and above the deep fascia. The deep fascia forms a tubular investment of the muscles and consequently separates the superficial from the deep lymphatics, so when there is an obstruction of one there are no collaterals because of this membrane. It naturally follows then in those cases with lymph obstruction that there will be permanent disability with subsequent edema. Because of the above mentioned factor, Ochsner[6] emphasizes the importance of avoiding injury of any nature, particularly injury from scratching to relieve the intense itching which results from the associated eczema that is frequently present.

The complications associated with varicose ulcers of the lower extremity are numerous. The following are some of the more common:

phlebitis, erysipelas, lymphangitis, periostitis, osteomyelitis, calcification of the deep blood vessels of the leg, fixation of foot in abnormal position, callous formation with subsequent formation of trophic ulcers, and, rarely, Marjolin's ulcer. Erysipelas is occasionally seen resulting from bacterial invasion following scratching for the relief of the itching caused by the eczema. Fixation of the foot in abnormal positions is a complication which usually manifests itself late in the stage of chronic ulceration and results from contracture by excessive scar. There may or may not be an associated ankylosis. Frequently the contracture is sufficient to draw the foot into a position where weight bearing areas are shifted over unusual bony prominences with the production of callouses and these at times undergo changes, resulting from continued pressure, which end in trophic ulcers. Phlebitis, lymphangitis, periostitis, osteomyelitis, and calcification of the deep vessels of the leg are complications which result from progression of the infection. These changes represent a progression of the original process that started as a bacterial invasion but which grew progressively worse. Norris[8] states that there are fundamental changes in remote structures which are frequently not recognized. The tibia and fibula are commonly so extensively involved that periostitis or osteomyelitis can extend throughout the entire shaft and even involve the epiphysis, but when present the infections are usually so attenuated that they pass unnoticed and occasion little or no pain. The inflammatory processes resulting in the most extreme structural changes never apparently reach the stage of abscess formation, and, if suppuration exists, its products are absorbed in the body. Widespread vascular changes are frequently found in the deep vessels (posterior tibial and the peroneal), showing marked calcification which sometimes extends to the popliteal above. These vascular changes are most marked when the ulcer has been present for a long time but they occur independently of site, size, or depth of the ulcer. Roentgen ray studies of the involved bones show no involvement immediately beneath the ulcer but frequently manifestations are found at the opposite end of the bone. The osseous changes found may not even be confined to the bone immediately underlying the ulcer but may occur to an equal extent along the bone on the opposite side of the leg. It is logical to assume that this process is not due to direct invasion of bacteria from the ulcer bed to the bone, but is in all probability more generalized. Advanced arteriosclerosis, as evidenced by calcified arteries demonstrated by roentgenologic studies, suggests that the logical method of bacterial distribution to the remote parts of bone is by way of the arterial wall and adjacent lymphatics. The logical mechanism would be that the lymphatics which drain the ulcer later become the seat of chronic lymphangitis, extending proximally not only through the superficial lymphatics to the femoral nodes but also through the deep lymphatics. Chronic lymphangitis of the perivascular lymphatics permits bacteria to migrate through the delicate lymphatic walls and to penetrate the walls of the arteries and veins, thus enabling the bacteria to penetrate the walls of the nutrient vessels to be distributed to all parts of the bone. As calcification is a late manifestation of chronic infection, the calcification of the vessel walls would be the logical result.

Chronic varicose ulcers of the lower extremity are probably more generally treated in an injudicious manner than any other common surgical condition. Poverty and indifference on the part of the patient and lack of interest on the part of the physician are factors which are largely responsible. Failure to apply fundamental principles in attempting to effect wound healing along with failure to consider associated pathological and physiological changes are factors which are frequently responsible for improper care. Probably 70 to 75 per cent of all varicose ulcers of the lower extremity, if treated timely and properly, can be cured by relatively simple methods, progressing from the prophylactic procedures of avoiding trauma, venous injections, and supporting bandages to the more active treatment of the ulcers, as physiologic rest, hot saline dressings, elevation of the part in bed, application of sea sponges, pressure, and Unna's paste boot. All the above procedures have been adequately described by Ochsner[6], McPheeters[9], Dixon

Wright[10] and others, and as this paper is concerned with the treatment of the more chronic varicose ulcers of the lower extremity, no attempt will be made to go into those procedures in detail.

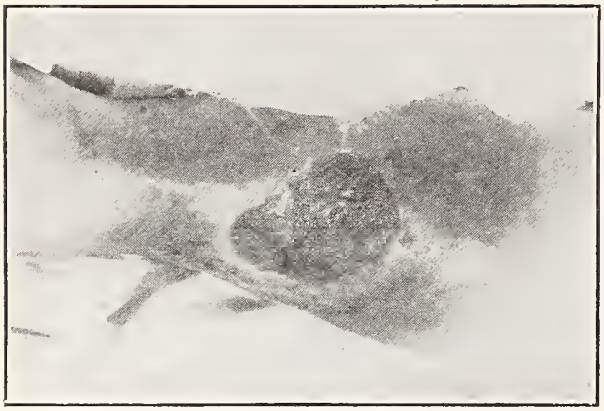

Fig. A-1. Photograph showing chronic varicose leg ulcer. This leg showed considerable venous stagnation and lymph edema. The amount of scar was small, thus enabling a cure to be effected by applying Davis grafts to the ulcer while the patient was still ambulatory.

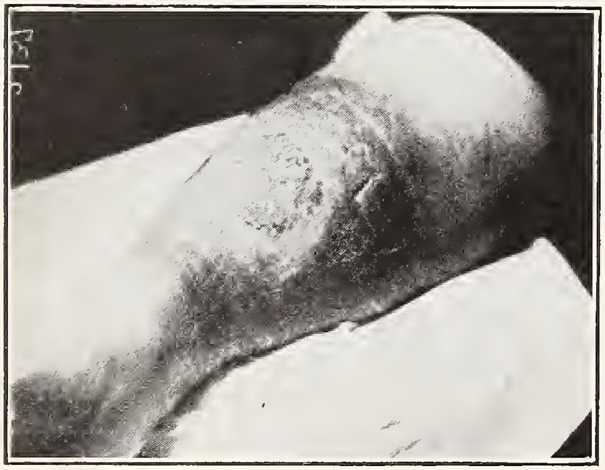

Fig. 1-B. Photograph showing the ulcer healed after the application of the Davis grafts.

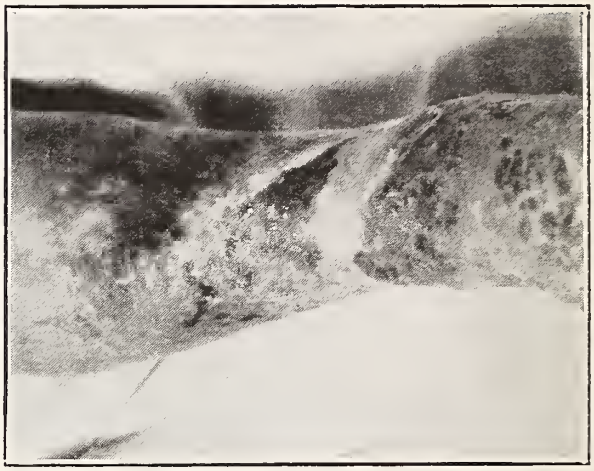

Fig. 2-A. Photograph of chronic varicose ulcer of the right leg which had been present for eighteen years. This patient experienced so much pain from this ulcer that she was unable to walk without support for twelve years.

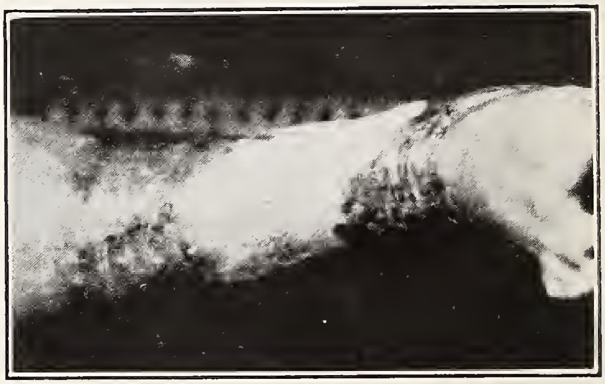

Fig. 2-B. Photograph showing the ulcer after healing had been effected by means of Davis grafts. Following the repair of this ulcer the patient has been comfortable and is now carrying on normal household duties. Note the diminished amount of swelling after healing has taken place.

An examination of a chronic varicose ulcer of the lower extremity reveals a shallow ulcerated area with sloping edges and a dirty grayish base varying in size with the amount of infection and chronicity. There is always a discoloration of the skin with an eczema, dryness, scaliness, and brawny induration. The skin surrounding the ulcer is hard, infiltrated with scar, and cadaverish in appearance. On palpating the surrounding skin, venous lakes are outlined here and there as soft areas, varying in size and lying between firm ridges of scar which mark their boundaries. The skin surrounding the ulcer is hard and resistant and there is an obliteration of normal subcutaneous tissue. The skin may be firmly fixed and adherent to the underlying bone with a fixation of the foot and ankle in abnormal positions, the degree depending upon the amount of scar and the direction of the pull. There is always a varying amount of edema. DeTakats[4] has shown a decrease in arterial supply by means of the histamine test. Trout[11] and Mason[7] have called attention to the lymphatic obstruction with its resulting edema and have suggested methods for its correction. Probably too much importance has been attributed to the fact that there commonly occurs a chronic lymphangitis with a lymph stasis in chronic varicose ulcers. With all the accumulated data showing the marked pathologic and physiologic changes present in association with chronic leg ulcers one is impressed by the fact that methods are still used in the attempted treatment of this condition which a casual analysis would show to be futile. The lessened arterial supply to an involved area surrounding a chronic varicose ulcer has been proved by the histamine test and yet attempts to heal large chronic varicose ulcers by external stimulation still persist with no apparent thought of the consequences. It is true that many of these ulcers can be healed by long rest and application of heat and support, but the supreme test is more in the stability of the healed wound than in the mere healing. A large per cent of these wounds show a healing equilibrium which is well balanced. Many of them may be completely healed and made to remain healed under ideal conditions; others may be made to heal but will not remain healed unless properly supported by pressure, showing an immediate instability when any

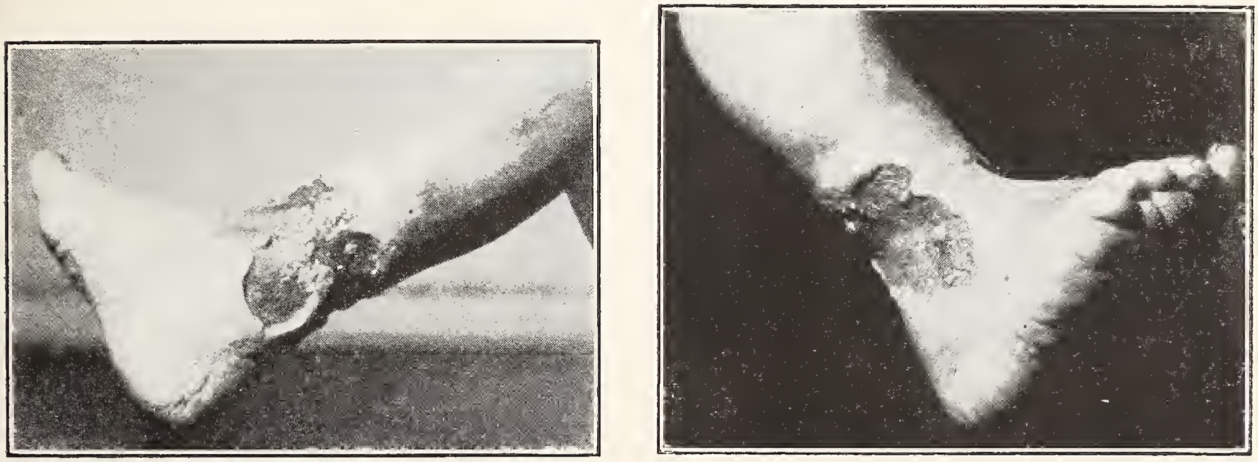

Fig. 3-A and B. Photographs showing chronic varicose ulcers of the right leg with a tremendous amount of scar. The foot has been drawn into an everted position by means of scar contracture. This ulcer has been present for fourteen years. The ulcer has the appearance of having undergone malignant change and because of this I first did a biopsy to determine the presence or absence of Marjolin's ulcer. The biopsy report was negative, so that moist dressings were immediately applied in order to stimulate granulation and eliminate infection. Davis grafts were subsequently applied and healing was effected about twelve days after.

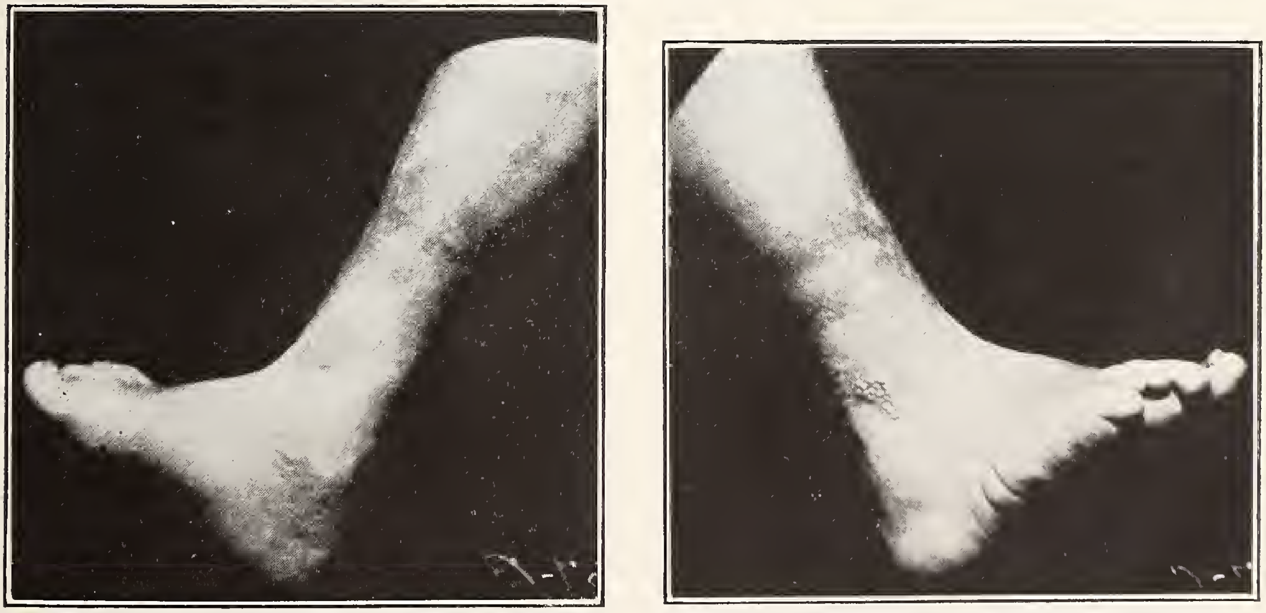

Fig. 3-C and D. Photographs showing the healed stage following application of Davis grafts. Note the diminished swelling following healing of these ulcers. This case responded so satisfactorily that no surrounding scar was excised. Since healing has occurred both ulcers have reappeared beneath the areas which were grafted, thus proving the fallacy of not excising the surrounding scar before grafting.

strain is encountered, and still others will epithelialize to a degree which greatly reduces the size of the ulcer and then for no apparent cause that portion which has already epithelialized will slowly begin to break down, melting like snow in the sun. Probably every ulcer which is greater than 3 inches in diameter should be repaired by scar extirpation, followed by skin grafting, if a permanent and satisfactory healing is to be obtained, for a large percentage of these ulcers, if healed by the less radical methods of heat application, obliteration of veins, sponge pressure, and Unna's paste boot, will subsequently become unstable under the slightest strain.

An incision through the skin surrounding one of these chronic varicose ulcers of the lower extremity probably reveals the explanation for most of the difficulties in effecting permanent and satisfactory healing. The skin is permeated with dense scar; not only surrounding the ulcer, but also extending beneath the base, is a layer of scar tissue varying from one-fourth to one-half of an inch in thickness. Upon observing this mass of scar one needs no imagination to realize the difficulty if not the impossibility of blood vessels penetrating its thickness. On the basis of the above findings we have used an operative procedure in the more advanced cases of chronic varicose ulcers of the leg in which advanced tissue changes have been present. As a preliminary therapy all varicose veins are obliterated by means of injecting some satisfactory sclerosing substance or by a combination of ligation and subsequent injection of sclerosing substances. Following the obliteration of the involved varicosities the operative procedure consists of complete excision of all scar surrounding the ulcer, with a wide lateral margin, and complete extirpation of all scar forming the floor of the ulcer, including the deep fascia. Complete extirpation of all scar requires dissection which is sufficiently radical to expose underlying muscles and tendons. The above described procedure not only fulfills all the requirements for obliterating varicose veins for relief of venous stagnation and the re-establishment of lymphatic communication between the superficial and the deep systems in overcoming lymph stasis, but also affords a vascular supply which springs from the tissues beneath the deep fascia to send capillaries upward which will be adequate to support skin grafts for the repair of the defect produced. Following the radical removal of scar no immediate repair is attempted at this stage. The patient is required to remain in bed and continuous hot wet hypertonic saline dressings are applied. The involved leg is constantly kept under a heat tent. After a period of forty-eight to seventy-two hours, a beginning proliferation of granulation tissue is clearly visible. This proliferation of granulation tissue steadily progresses for twelve to fourteen days when the defect resulting from the extirpation of scar, which formerly showed only exposed muscle and tendons, reveals a firm, healthy granulating surface completely covering the wound. The granulations at this stage are firm and velvety and show a healthy proliferation of capillary buds. They afford ample vascular supply for the viability of skin grafts, and it is important that grafts be applied at this time as no proliferation of scar has occurred. Procrastination beyond this stage only permits an increase in the formation of fibrous tissue which in turn lessens the proliferation of healthy granulation by contracture, naturally diminishing the available blood supply for the grafts. Davis grafts or those of the intermediate type are the grafts of choice in repairing these defects. Either graft will produce a satisfactory and stable type of repair enabling the patient to carry on his usual daily routine with little or no difficulty. Following the repair of the defects by means of skin grafting the patients must be careful in the treatment of the involved leg. Adequate circulation is not immediately established and for this reason the patient should gradually develop the circulation to the grafts by lowering the leg to a dependent position for only a few minutes at each trial, being careful to raise the leg to body level immediately when congestion and bluish discoloration are noted. A few of the above described exercises, slightly increasing the time element each day, will serve to develop the circulation sufficiently to enable the patient to keep the involved leg in a dependent position for twenty to thirty minutes within one to two weeks. After reaching this stage it is usually safe to permit walking in moderation with the aid of a crutch. When walking, the patient's leg should always be supported by means of some satisfactory bandage, preferably one which is interwoven in a manner which imparts an elastic-like quality, for a period of six to nine months. After this period of time it is usually safe to discard the support entirely. Care should also be taken in preventing the graft from becoming hard and dry. This is done satisfactorily by applying cold cream and massage. Frequently itching is a distressing symptom because of dryness in the graft. This is satisfactorily overcome by the application of a generous coating of castor oil, and this same remedy is equally efficacious for the relief of the intense itching resulting from the eczema which is associated with varicose veins and varicose ulcers.

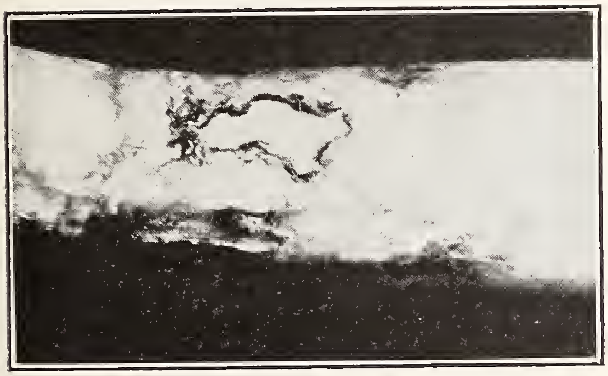
Fig. 4-A. Photograph of chronic varicose ulcer which had been present for forty-five years.

By means of the above technic we have been able to treat successfully patients suffering from chronic ulcers of the lower extremity. Many of our patients so treated have suffered from these ulcers for exceptionally long periods (one for over thirty years) and showed many associated complications. One patient who had been unable to walk for over twelve years because of extreme pain is now restored to normal activity as a housewife. Following the repair of the ulcers by means of skin grafts the patients have been comfortable and able to resume a greater part of their normal activity. Those cases which had complete removal of the scar about the ulcer and dissection down to muscle and tendon have remained healed and have shown no tendency to become unstable; conversely, in the cases in which a compromise was made and less scar was removed, even though the veins had been thoroughly obliterated, it was found in nearly every instance that the ulcer did not remain healed. An interesting observation in those cases which were grafted and subsequently showed a tendency for the ulcer to recur is that the tissue which became unstable and melted away was always the surrounding scar and not the graft, thus giving further evidence that the instability seen in healed varicose ulcers was intimately associated with scar and inadequate circulation.

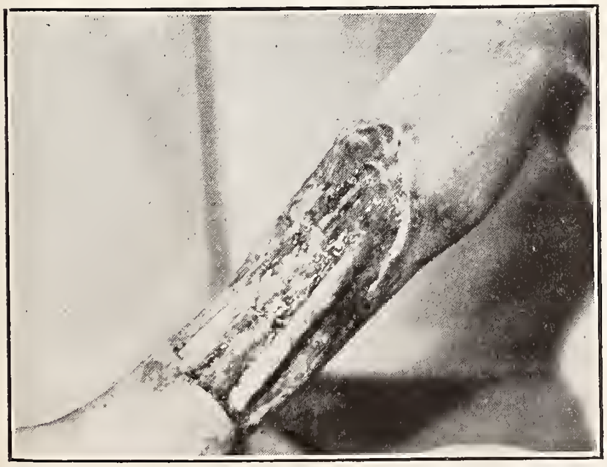
Fig. 4-B. Shows extent of dissection which was done, revealing tendon and muscle.

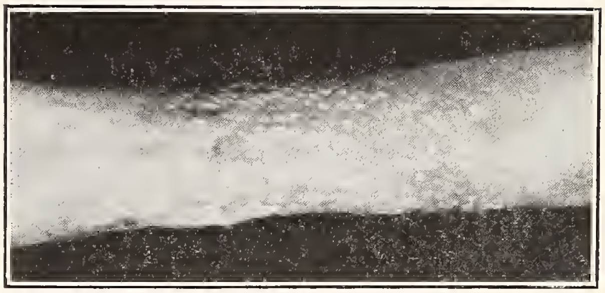
Fig. 4-C. Shows the result following application of Davis grafts after granulation had been stimulated by means of hypertonic saline soaks. Healing in this leg has remained entirely stable.

We feel that sufficient consideration is not given the care of chronic varicose ulcers, not only from the standpoint of the patient's welfare, but also from the standpoint of the enormous economic loss. A casual survey may cause some to assume that the cost of hospitalization over a period of six to eight weeks would not be justified, but when one balances this against years of time lost by the patient with associated suffering and cost of clinic treatment (including supplies and clinic attendants), the hospitalization cost pales into insignificance in comparison. Dixon Wright[10] quotes one extreme case which, when estimated from point of time loss, cost of materials, medical costs, and pension payments, cost the British government 5,000 pounds over a period of forty years. The care of these cases constitutes a problem which must be handled with determination for many of the patients are indifferent to the point of being perfectly content to remain clinic patients, preferring to continue as clinic cases and receive regular tri-weekly dressings rather than submit to an operation. It is questionable whether clinics can economically afford to assume responsibility for supplying material, available clinic space, and time of clinic attendants over a period of years rather than insisting that these patients submit to cure by operation.

A large percentage of chronic varicose ulcers of the lower extremity can be entirely eliminated by proper care in the early stages of their development. This responsibility rests upon the shoulders of the profession in all cases seen in the early stages, for a majority of these ulcers can be prevented or held in check if judiciously treated at this time by the simpler methods. Those cases that develop ulcers which do not show stable healing can be healed by grafting while still ambulatory. It is possible to effect permanent healing in a high percentage of the early varicose ulcers, before the stage of massive scar formation, by the application of Davis grafts. These grafts can be held fixed by sea sponge pressure in a manner which permits the patient to remain ambulatory. Thus when it is possible to effect healing of the early ulcers by ambulatory methods, the responsibility of preventing chronic varicose ulcers rests squarely upon the profession.

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### DISCUSSION

Dr. Howard Mahorner (New Orleans): Of all the cases of varicose veins treated in the Department of Surgery of the Hutchinson Memorial Clinic, 29 per cent have varicose ulcer. This does not include all the cases of varicose veins diagnosed as such in the Hutchinson Memorial Clinic, but only those treated in the Department of Surgery. By far the greater number of patients with varicose veins are seen in the Department of Obstetrics and because of the tendency to recover after parturition, most of these cases do not receive surgical treatment. The high incidence of varicose ulcer found in our patients indicates to some extent that varicose veins we are seeing are frequently severe or far advanced. Approximately one in every six cases of varicose ulcers treated by us have had skin grafts by Dr. Owens. Skin grafts will accomplish healing in some instances in which it cannot be accomplished by other methods and facilitates healing in other cases when the ulcer is large.

The size of the varicose veins does not bear any direct relationship to the incidence of varicose ulcer. Sometimes patients with huge, neglected varicose veins do not have ulcers, whereas others with varicosities apparently less marked have ulcers. Undoubtedly, however, ulcers are directly proportionate to the amount of local stasis.

This all brings up the matter of modern treatment of varicosities. Because of the high incidence of recurrence noted in those cases in which the injection treatment alone was used, we have turned with increasing satisfaction to actual section and ligation of the internal saphenous vein and simultaneous injection of the distal stem. Sometimes we ligate the vein high only; sometimes high and low, depending upon the result obtained from the test devised in this clinic, but too complicated to explain here, evaluating the competency of the valves of the veins communicating between superficial and deep system.

It was the high mortality varying from 0.7 per cent to 1.5 per cent that resulted in operations which had as their object the entire elimination of the internal saphenous system, such operations as Madelung's, Mayo's, and Babcock's being thrown to the discard. Such a mortality would discredit any procedure for varicose veins. The procedure we are using is so far without any mortality in our experience or any recorded mortality. We ligate the patients in the clinic and after an hour let them walk out. We insist on their walking some every day and will not permit them to convalesce in bed. We believe this mitigates against clot propagating into the deep system with the possibility of resulting pulmonary embolism. Ligation and section and injection of the distal stem of the vein with sodium morrhuate or sodium gynocardate results in a thrombosis of the internal saphenous in the thigh, sometimes propagating down into the superficial veins of the calf. One treatment instead of many injections may be sufficient to cure the varicosities of an extremity. Should even an extremely small mortality result from this type of treatment, we will have to discourage its use, but so far in a large number of cases we have had no untoward results, and since 1929 when de Takats showed the feasibilty of ligation with the patient ambulatory through the entire convalescence, there has been no death reported from ligation when the patient remained ambulatory. The reduced incidence of recurrence and improved results by this method in our experience justifies its employment in the moderate and severe cases of varicose veins. In the mild types in which the Trendelenberg test is weakly positive we still rely on the injection treatment alone.

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# THE SIGNIFICANCE OF CARDIAC ARRHYTHMIAS AS ENCOUNTERED IN GENERAL PRACTICE

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The disturbances of normal cardiac sinus rhythm, that is, the variations from the normal cardiac mechanism when the sinus node serves as pacemaker, are all grouped under the inclusive term of cardiac arrhythmias. The term arrhythmia literally means "not measured motion," therefore irregular, and in the strictest sense of the term should be concerned only with irregularities of rhythm. But the term cardiac arrhythmias is now used to include all deviations from the usual normal sinus rhythm, whether they are regular or irregular in rhythm.

I shall attempt to present a discussion of these arrhythmias, including disturbances of the sinoauricular pacemaker mechanism. The discussion will consist of an explanation of the mechanism, the means of recognition, the significance and the treatment of each type. As to the means of recognition, or diagnosis, stress will be placed particularly upon clinical facts, and the electrocardiographic characteristics will be used only to explain the mechanism more clearly, and as a possible means of diagnosis and differentiation in those forms which cannot be diagnosed definitely, or at all, clinically.

After such a lengthy preamble, it must further be stated that I have nothing original to offer. These cardiac arrhythmias, since the advent of the electrocardiogram, are all clearly understood and have been very adequately described by many authors. Any discussion on the subject at this time can be only a summary of the existing information and opinion from reliable sources. These have all been drawn upon freely.

## SINUS ARRHYTHMIA

Sinus arrhythmia is best described as a waxing and waning of the cardiac rate, constantly recurring, accompanying inspiration and expiration. During inspiration the rate increases, and during expiration the rate decreases. This then produces an alternate acceleration and slowing of cardiac rate as heard at the apex or felt at the radial pulse. Occasionally it may occur phasically without this relationship to respiration. It may be quite noticeable with quiet normal respiration; moderately well marked or not clearly connected with quiet respiration, but definitely demonstrated upon deep breathing; or noticeable only upon deep breathing or as a marked slowing of the rate while the breath is held in deep inhalation.

Sinus arrhythmia, or respiratory arrhythmia, occurs usually in children and young adults, and is, therefore, also called juvenile arrhythmia. It is found occasionally in older individuals, and rather commonly in the aged. It is almost always associated with a relatively slow rate, certainly under 100 per minute, and when the rate is increased above 100 per minute the irregularity usually disappears.

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This arrhythmia is entirely physiologic and has no clinical significance except the differentiation from other abnormal significant rhythms and the knowledge that it is non-pathologic. When it occurs in individuals past 25 years of age it is considered an indication of vagus-sympathetic imbalance, or increased vagal tone. In older individuals it may mean some pathologic changes in the auricles near the sinus node. This statement is not a certain one.

The fact that sinus arrhythmia does not of itself indicate cardiac disease does not mean that it cannot occur in individuals with myocardial damage. This same statement applies equally as well to other arrhythmias to be discussed which, while in themselves are not indicative of cardiac damage, may occur in individuals with such damage. In such cases, of course, the diagnosis of cardiac pathology must depend upon other factors than the arrhythmia. This fact concerning sinus arrhythmia must be emphasized because it has been my experience that many physicians will dismiss the possibility of myocardial damage in a given individual on the basis that a sinus arrhythmia is present and that such an arrhythmia cannot exist in a damaged heart. This is untrue. It may also be the result of full digitalization producing increased vagal tone.

In connection with these statements it is true that in certain disease conditions, such as hyperthyroidism or rheumatic heart disease, in which the cardiac rate has been rapid and regular, the appearance of a sinus arrhythmia is an indication that the underlying pathologic condition is clearing up, and normal vagal tone is gradually being re-established.

It is clear then that no treatment is necessary for sinus arrhythmia. These individuals should not be considered to have cardiac disease unless other signs are present, and their activities should not be limited.

### PREMATURE CONTRACTIONS

Premature contractions are a type of cardiac irregularity which are also termed extrasystoles and ectopic beats. The names are synonomous, but the term premature beat more accurately describes the mechanism. They are contractions which occur prematurely, or earlier in the cardiac cycle than they should. In this manner an irregular rhythm is produced. A normal cardiac cycle is followed rapidly by a premature beat, followed by a pause longer than the interval between regular beats, and then a resumption of the normal rhythm until another premature contraction interrupts it when the disturbance is repeated.

Such an irregularity can be recognized at the bedside usually by a study of the cardiac and pulse rates, and the heart sounds. The pulse will usually show a beat occurring sooner than one would expect following the previous beat, a pause longer than the usual interval between beats, and then a resumption of the usual rhythm. The cardiac impulse will be similarly disturbed. The heart sounds will show two, or occasionally one, heart sounds occurring shortly after the previous two heart sounds associated with the early beat palpable at the wrist. A pause will then ensue and the heart sounds will again be heard in their usual rhythm. The fact that one sound or two sounds are always heard over the heart synchronous with the premature beat felt at the wrist is very important in its differentiation from at least one other arrhythmia. Occasionally this premature contraction occurs so soon after the previous normal cardiac systole, therefore early in diastole, that the amount of blood thrown out into the circulation is insufficient to produce an early beat at the wrist. In this case there will be only a pause at the pulse, but the premature sounds will be heard. If very early in diastole, the blood volume may be insufficient to open the aortic and pulmonic valves and only a first heart sound will be heard since the second sound is the result of the closure of these valves. Such a resulting condition produces fewer pulse beats at the wrist than there are heart sounds at the apex, and the condition is called pulse deficit. It is not pathognomonic of premature contractions, however, since it also occurs in auricular fibrillation. The same mechanism explains the fact that with premature contractions some of the beats are strong, some are weak, and these variations can often be noted also on the sphygmomanometer.

The pause which follows a premature contraction is called a compensatory pause. It is due to the fact that when the next normal impulse reaches the cardiac muscle it has not completely recovered from its abnormal contraction, is therefore refractory, and cannot respond. It must, therefore, wait until the next normal impulse reaches it. It is truly compensatory following ventricular prematures, not quite so following auricular prematures.

These premature contractions may arise in the auricles, the ventricles or the junctional tissues between these chambers, namely the auriculo-ventricular node and the bundle of His. They are, therefore, termed auricular, ventricular and junctional or nodal premature contractions. They may occur frequently or infrequently, regularly or irregularly, in the cardiac cycle. They may occur from several different foci within the same tissues or in any or all of the three tissues in any interval. For clinical purposes it is practically impossible to differentiate them as to their source and this fact has very little significance. The possible differentiation will be mentioned. They are localized exactly by the electrocardiogram.

Premature contractions do not of themselves indicate cardiac pathology. They are a very common type of arrhythmia and occur in healthy individuals as a neurogenic or purely functional disturbance. Ventricular premature contractions occur about ten times more frequently than auricular premature contractions. The auricular type is most apt to be found in people with heart disease. The junctional type may be grouped with the ventricular type as to significance. It must again be understood that this type of arrhythmia does occur with heart disease, but the diagnosis must be based upon other evidence. Their prognostic value is, therefore, negligible. When a patient is found to have premature contractions he should be examined very carefully for cardiac or other diseases, but if no other findings are present the irregularity should be dismissed. If there are other signs of cardiac damage, a prognosis should be based upon these signs and not upon the premature contractions.

Suggested possible causes for the occurrence of premature contractions include coffee, tobacco, overwork, constipation, flatulence and infection. Under other circumstances there is no apparent cause. Sometimes they will occur during the course of, or in the convalescence from, an infectious disease. Digitalis will produce ventricular premature contractions, producing a type of rhythm described as coupling or pulsus bigeminus which will be described later. Digitalis does not produce auricular premature contractions.

Auricular premature contractions seem to have some relationship to auricular paroxysmal tachycardia, auricular fibrillation and auricular flutter. In cases of mitral stenosis, auricular premature contractions sometimes occur some time before auricular fibrillation occurs. When this occurs one feels that auricular fibrillation will probably be not long delayed. Auricular premature contractions, therefore, are found more frequently in individuals with heart disease. As stated before, it is usually considered impossible to differentiate them from ventricular premature contractions without the aid of a graphic method like the electrocardiogram. Levine offers a method of differentiation based upon the fact that the pause after an auricular premature contraction is not truly compensatory, that is, twice the usual length of a cardiac cycle from the previous regular beat to the next regular beat. This means that the pause will be shorter. If the clinician "taps with his foot in rhythm with the regular beats, and continues the same pace when the extra-systole occurs the foot will come down synchronously with the following beat if it is an extraventricular systole. This will generally not be so if it is auricular." The sounds occurring with auricular premature beats also sound like the normal beats, while the sounds with premature ventricular beats have a peculiar clicking sound. Such points of differentiation may be helpful.

For the most part, therefore, premature contractions should be dismissed as of no importance. The patient may not be conscious of their presence. He probably should be told of their existence and non-importance in order to avoid any future misconception. There should be no restriction of activity unless there are other reasons requiring this. If there are no symptoms, no medication is required. One should investigate the suggested factors and eliminate them if possible. During or following an infectious disease their occurrence should cause one to prolong the convalescence. Some patients, however, do have symptoms which may be annoying. These are varied in type and include palpitation, short sharp pains, and sensations described as "heart skip" or "heart turns over." Under such circumstances possible causative factors should be eliminated. A source of infection should be sought and removed if possible. Failing here, drugs may be used. Sedatives such as bromides are helpful. Occasionally potassium phosphate, 30 grains (2 gm.) three times daily by mouth, is helpful. As a final resort, quinidine, 3-4 grains (0.2-25 gm.) three times daily, may abolish them, or, if taken before their usual occurrence, may prevent them. Such drugs as the latter two should be used only if absolutely necessary. Strychnine, 1/60 grain (0.001 gm.) three times daily has also been recommended.

While premature contractions occur usually with relatively slow rates and disappear or diminish in frequency as the rate is increased, there is a type which appears on physical effort. These are thought to be more serious, and may predispose to the development of ventricular tachycardia on effort.

Nodal premature contractions cannot be differentiated from the other two types clinically, and have no added significance.

### PAROXYSMAL TACHYCARDIA

Paroxysmal tachycardia is a disturbance of cardiac mechanism resulting in a regular rapid rate beginning and ending abruptly. It lasts for a varying period of time and is often repeated at intervals. Frequently it offers nothing characteristic to distinguish it from any other rapid heart rate, or sinus tachycardia, and the distinction is often based on the history alone. The history of a sudden increase of cardiac rate ending as abruptly as it began is the significant feature. In contra-distinction to sinus tachycardia, the rate is fixed at this rapid level, and deep breathing, exercise or change of position has no effect upon it. The attacks usually occur without any apparent cause. The condition should always be suspected in a resting patient with a persistent fixed rate of 130 per minute or over, unexplained by the usual causes of tachycardia such as fever or hyperthyroidism. The rate may be as rapid as 160 to 200 or more per minute. Often, when the attack lasts for several hours, there are the typical signs of cardiac failure. When the patient is seen in the first attack it may be difficult to distinguish it from other rapid rhythms.

The mechanism of this arrhythmia is that it consists of a series of rapidly recurring premature contractions arising from the same focus. Paroxysmal tachycardia may, therefore, be auricular, nodal or ventricular in origin. It is usually stated that these types cannot be differentiated clinically the one from the other as to origin, and this is usually true. It is possible sometimes, however, to differentiate auricular or nodal paroxysmal tachycardia from ventricular tachycardia. This is then a differentiation between supra-ventricular and ventricular origin, and often the electrocardiogram can differentiate no further. The differentiation betwen these two broad types is important, and if it cannot be made clinically the electrocardiographic differentiation, if available, is quite helpful for reasons to be stated later.

Paroxysmal auricular tachycardia is rather common clinically and usually causes considerable discomfort. Rarely it may have serious consequences. The symptoms and possibility of the development of circulatory failure depend upon three factors: The duration of the attack which may be hours, days, or rarely weeks; the rate of the heart during the attack; and the state of the heart before the attack. The auricular type of paroxysmal tachycardia is about twenty-five times as frequent as the ventricular type, and is the least important. It usually occurs in individuals without structural cardiac defects, though it may be a complication of organic heart disease when it may assume alarming proportions. It ordinarily occurs without detectable cause, but may seem to be precipitated by unusual exertion, emotion, accumulation of gas, indigestion, or the intake of a particular food. When such precipitating causes are apparent, therapy directed to the gastrointestinal tract has apparently no benefit in the prevention. Sudden changes of position may also be responsible for the onset.

The patient usually complains of palpitation and fluttering. He becomes nervous, apprehensive and occasionally has fairly typical anginal pains radiating to the arms. Nausea and vomiting may occur, terminating the attack often, and the supposition that indigestion is the responsible factor is strengthened. The patient quickly recovers with the restoration of normal rhythm, though he may be quite weak. With the other factors unfavorable and the persistence of the rapid rate, congestive failure may appear.

The clinical recognition of either the auricular or supra-ventricular and the ventricular type of paroxysmal tachycardia is essentially the same. Their differentiation may occasionally be possible clinically without graphic methods. Under all circumstances the recognition of the paroxysmal tachycardia is based upon the following: There is usually a history or definite evidence of an abrupt change of cardiac rate. The rate is regular and rapid, from 150 to 250 per minute. It may occasionally be slower. The rate remains fixed for long intervals and is uninfluenced by breathing or exercise. Levine states that rates as rapid as 250 per minute can be counted, if one is careful, by auscultation over the precordium. If one counts the heart sounds for 60 seconds by auscultation over the precordium and then repeats this count in a few minutes after slight exercise, or with the patient in a different position, there will be no more than two beats difference in the two counts in paroxysmal tachycardia. If there is a greater discrepancy than two beats one is probably not dealing with a paroxysmal tachycardia but a rapid sinus tachycardia. The count can be facilitated by tapping on a table with a pencil synchronously with the heart beats and counting the taps.

Given a paroxysmal tachycardia, the auricular type may be differentiated from the ventricular type by the fact that, while the auricular paroxysmal tachycardia is absolutely regular, the ventricular paroxysmal tachycardia will usually show slight irregularities. Slight variations may also be heard in the quality and intensity of the first heart sound with ventricular paroxysmal tachycardia; and the ventricular type is never influenced by methods of stimulating the vagus, often effective in the control of the auricular type. When they cannot be differentiated clinically and an electrocardiogram is not available, they should probably be considered as auricular and treated as such. If these measures fail, those recommended for the ventricular type may then be attempted.

No other rapid rate except paroxysmal auricular tachycardia will respond by a return to normal by simple means so quickly. With a normal tachycardia the return to a slow rate is gradual. Vagal stimulation by pressure over the carotid sinus or eyeball will cause a temporary slowing of a sinus tachycardia with a gradual return to the previously rapid rate. With paroxysmal tachycardia such vagus stimulation will cause the rate to fall abruptly to normal, or will leave it entirely unaffected. With auricular flutter temporary slowing only will result usually. With ventricular tachycardia the vagus stimulation will have no effect.

The treatment of auricular paroxysmal tachycardia is directed to ending the attack and preventing a recurrence. Many attacks will end spontaneously with no resulting harm if left alone. About fifty per cent will be stopped by vagal stimulation. One of the simplest methods is to have the patient hold a deep inspiration as long as possible or produce a quick expiratory effort with the glottis closed after a deep inspiration. The induction of vomiting by stimulating the pharynx or the use of syrup of ipecac, one to four teaspoonsful, is often effective. Lowering the head or lying down may end the attack. Carotid sinus pressure to produce vagal stimulation is most valuable. Standing behind the patient, pressure is made with the fingers on the right carotid artery just below the jaw. Pressure should be carried backward and medially against the spine for several seconds. The other side may also be pressed upon, but not both sides simultaneously. The next best method of vagal stimulation is by means of pressure over one eyeball at a time, pressing the eyeball firmly backward. If these measures fail, drugs may be used. Often acetyl-beta-methylcholine, 20 to 50 mg. (1/3 to 2/3 grain) given subcutaneously stops the attack. Occasionally digitalis may gradually stop the paroxysm. Quinidine may be used in critical cases giving 5 grains (0.3 gm.) intravenously. This is a dangerous procedure, however. The prevention is difficult and only worthwhile if the attacks are frequent. Then either constant full digitalization or 3-5 grains (0.2 to 0.3 gm.) of quinidine sulphate by mouth daily may be successful.

Paroxysmal ventricular tachycardia is usually present with organic heart disease and is usually serious. It is not far removed in mechanism from the grave ventricular fibrillation. The rate is usually slower than the auricular type, between 160-180 per minute.

In the treatment of ventricular paroxysmal tachycardia quinidine is practically a specific. Five grains (0.3 gm.) of quinidine sulphate may be given by mouth every hour until the arrhythmia stops, but not more than nine doses should be given in 24 hours. Larger doses are sometimes given, as much as 22 grains (1.5)gm.) five times daily. Digitalis is not only of no value in this condition, but it may actually be harmful.

### HEART BLOCK

By the term heart block is meant varying degrees of delayed conduction of the impulses from the auricles to the ventricles through the A-V node and the bundle of His. Such interference to the conduction of the impulse is, therefore, auriculo-ventricular or A-V block. This interference may be partial so that the impulses reach the ventricles but only after a longer than normal period, or some of the impulses are conducted while others are not, or complete auriculo-ventricular block when none of the impulses are conducted through to the ventricles.

There are, therefore, two types of partial heart block, or two degrees of conduction interference. The first, or lesser degree, is manifested merely by a prolongation of the conduction time from auricles to ventricles beyond the usual maximum normal. The maximum A-V conduction time is 0.20 second and any prolongation of the interval is abnormal. Instead of partial block this should be most correctly termed delayed auriculo-ventricular conduction. It can be identified only by the electrocardiogram, though it may be thought of as a possibility in certain conditions when a gallop rhythm is present.

The second degree, or true partial block, is produced when conduction is impaired to such an extent that an occasional impulse from the auricles is completely blocked and there is, therefore, no ventricular response to that impulse. Such a degree of partial block can be recognized clinically. The failure of the ventricles to contract at occasional intervals will produce a pause at the radial pulse and a pause in the sounds and impulses at the heart. There will be no beat at the pulse and no sound or impulse at the apex. This is, therefore, truly a "dropped beat." It should be clearly understood that the pause at the wrist is synchronous with the pause in sounds at the apex, differentiating it from that type of premature beat described previously which, while it may produce no premature beat at the wrist and only a pause will result, is always associated with an audible premature sound at the heart.

These pauses or "dropped" beats may occur at irregular intervals, but usually they occur at regular intervals to establish a definite rhythm. There will be a definite ratio between the number of auricular and ventricular beats so that every second, third, or fourth beat is blocked, and a pause results. This gives rise to a 2:1, 3:1, 4:1 block, expressing the ratio as the number of regular beats to the number of pauses or dropped beats, or a 2:1, 3:2, 4:3 block when the ratio is expressed as the number of auricular contractions to ventricular contractions.

These lower grades of heart block occur during rheumatic fever, diphtheria and infectious diseases to a lesser extent, as a result of chronic organic heart disease, or due to the toxic effect of digitalis or other toxic factors. Digitalis is the most common cause of the lesser degrees of block. The higher degrees of block are usually produced by degenerative heart disease. During the course of the infectious diseases the development of a heart block adds to the seriousness of the prognosis.

In young individuals not acutely ill with rheumatic heart disease, delayed A-V conduction or partial heart block is compatible with good health and full activity for many years. In older individuals it may be more serious, unless due to digitalis, because so frequently it is then a manifestation of impaired coronary circulation. The development of delayed A-V conduction is the first electrocardiographic evidence of a rheumatic myocarditis, and is positive.

There is no particular treatment for these two degrees of heart block. Occurring during rheumatic fever, or an infectious disease, they signalize the desirability of a longer period of convalescence than usual. The prognosis is usually favorable. The higher degrees are grave when they develop during diphtheria. When caused by digitalis therapy, the drug should immediately be decreased in amount or discontinued. Occurring during the course of congestive heart disease they are no contraindication to the use of digitalis, but the drug should be used carefully to avoid increasing the abnormality.

When the auriculo-ventricular conduction system is blocked to such an extent that none of the impulses reach the ventricle then the third degree of heart block occurs, complete heart block. In this abnormal mechanism all the impulses from the auricles to the ventricles are blocked. The ventricles must, therefore, institute a rhythm of their own or there will be complete ventricular asystole, or standstill, and, of course, death. When the ventricles originate this rhythm, at any point or focus below the complete block, a so-called idio-ventricular rhythm is established. The rate is slow and regular, usually 35 per minute or less. The rate may, however, be as much as 50 per minute. This slow regular rate is usually uninfluenced, or influenced to a very slight extent, by exercise, atropine, amyl nitrite or anything that would ordinarily increase the heart rate. These facts enable one usually to diagnose complete heart block, or at least suspect it. When one is able to notice variations in the character of the heart sounds occurring independently of respiration the diagnosis is absolute with such a slow rhythm. Rarely one may be able to note numerous regular waves in the neck veins occurring at an entirely different rhythm from the pulse beats. These are produced by the independent auricular rhythm.

Complete heart block is always indicative of organic heart disease unless it is due to marked digitalis intoxication. It is more common in elderly individuals as a result of degenerative arteriosclerotic lesions. It is seen in young people, however, when it may be the result of some congenital anomaly of the conducting system, or a lesion as the result of some childhood disease, especially diphtheria or rheumatic fever.

The presence of complete heart block may not necessarily incapacitate the individual. In elderly patients cardiac efficiency is more likely to be impaired because of the fact that the abnormal rhythm is but a manifestation of generalized cardiac pathology. The slow regular rhythm may be sufficient to maintain adequate circulation under most circumstances, but there can be no response by a quickened rate to an increased demand occasioned by exercise, exertion, or infection. Under these circumstances embarrassment may occur. In young individuals there is often practically no limitation of activity.

The chief danger with complete heart block is the tendency to syncopal attacks or ventricular asystole. The syncopal attacks, known as Adams-Stokes syndrome, are produced by further slowing of the ventricles or complete ventricular standstill. Such attacks occur suddenly and the symptoms which they produce will depend upon the duration of the pauses. There may be only a slight dizzy sensation as a result of a pause of only a few seconds. Or the patient may faint for several seconds. If the pause continues for 20 to 60 seconds, the patient will become unconscious and have a convulsion. If it lasts a few minutes, death ensues. Occasionally ventricular systole may be resumed even after the heart has ceased beating for several minutes. These syncopal attacks may occur with the sudden onset of the complete block; at a period of transition between partial and complete block, with a ventricular rate of less than 20 per minute; or during an established complete block when the ventricular rate becomes very slow.

Therapy in complete heart block is, therefore, directed towards the attempt to prevent syncopal attacks and the treatment of these attacks. Adrenalin is the drug of choice for the attacks, 0.5 to 1 c.c. of a 1 to 1000 solution given intramuscularly, or injected directly in the heart for a long attack of syncope. Between attacks, ephedrin in doses of 3/8 grain (0.024 gm.) once or twice a day may be used in an attempt to decrease the frequency and duration of the syncopal attacks. With very frequent attacks it may be necessary to repeat the injections of adrenalin every two or three hours for a day or more. Levine also recommends barium chloride, 1/2 to 1 grain (0.03-0.065 gm.) three or four times a day by mouth to inhibit attacks. This drug may be continued over a long period of time. Quinidine is absolutely contraindicated in these disturbances of conduction because of its depressing effect upon conduction and ventricular irritability. When cardiac failure ensues, digitalis may be used cautiously. However, the presence of complete block in such patients greatly limits the expected benefits from digitalis.

### PULSUS BIGEMINUS—PULSUS TRIGEMINUS

It will be well to mention here two types of irregularities of the pulse which may be due either to premature contractions or partial heart block. These are pulsus bigeminus and pulsus trigeminus. In pulsus bigeminus the pulse beats occur in pairs and in pulsus trigeminus in trios. Pulsus bigeminus may be due to alternating premature contractions, the usual mechanism of digitalis bigeminus or coupling as a result of digitalis intoxication, the premature beats being ventricular in origin. Again it may be due to the third regular beat being "dropped" as a result of a regular partial heart block; or by still a third mechanism when the third beat is a premature contraction not producing a pulse wave at the wrist. With pulsus trigeminus each third beat may be a premature, each fourth beat a dropped beat, or each fourth beat a premature not felt at the wrist.

### AURICULAR FLUTTER

In auricular flutter the auricles are contracting at a very rapid regular rate, usually about 300 per minute. Such a rhythm in the auricles is produced by a so-called pure circus mechanism in the auricular tissue about the great vessels. The ventricular rate will also usually be perfectly regular, and its rate will depend upon the ability of the conducting tissue to transmit these impulses. There will usually exist either 2:1, 3:1 or 4:1 block, though rarely there may exist a 1:1 conduction. This block is not a true block but is due to the refractory periods of the conducting system and the ventricular muscle.

It can readily be seen how difficult the clinical diagnosis of auricular flutter becomes. Such a rapid regular heart rate, when the block is of a lesser degree, may be due to a normal tachycardia, auricular paroxysmal tachycardia, or auricular flutter. The effect of vagal stimulation may enable one to differentiate it. If vagal stimulation slows it, the condition may be either auricular flutter or normal tachycardia. Rates of 190 or more at the apex cannot be normal tachycardia, because such a rate is too rapid. Since the auricular rate is rarely faster than 300 per minute with auricular flutter, the ventricular rate considered in its ratio to this rate is helpful. But with greater degrees of block, resulting in rates of 75 (4:1) or 100 (3:1) per minute the diagnosis is almost impossible. If one is fortunate enough to be able to see the regular rapid waves in the jugular veins produced by the auricular contractions, or, by having the patient exercise slightly, cause the block to decrease and the ventricular rate suddenly double for a short time, then one can make the clinical diagnosis. Ordinarily auricular flutter is considered impossible of exact clinical diagnosis without the electrocardiogram.

Auricular flutter may be associated with any type of organic cardiac disease or be entirely functional. It is usually considered a significant pathologic finding. It is apt to occur with hyperthyroidism, rheumatic fever, pneumonia, other infections, coronary thrombosis, and as a terminal event with chronic nephritis.

The drug of choice in the treatment of auricular flutter is digitalis. It may either restore normal rhythm or keep the ventricular rate slow. When the mechanism is restored to normal the ventricular rate slows, then auricular fibrillation occurs, and if the digitalis is stopped at this point a normal rhythm may follow. The digitalis is given in 5 grain (0.3 gm.) doses every six hours for two, three or four doses, then 1 1/2 grains (0.10 gm.) three times a day until digitalized, then a maintenance daily dose of 1 1/2 grains (0.10 gm.) If auricular fibrillation results and continues when digitalis is stopped, it is a preferable rhythm to that of flutter when the rate is kept slow with a maintenance dose of digitalis. Following digitalization, quinidine may be used to attempt to restore a normal rhythm. Such a procedure is best carried out when frequent electrocardiograms can check the results.

### AURICULAR FIBRILLATION

Auricular fibrillation is probably the most important arrhythmia, both from a diagnostic and a therapeutic standpoint. It occurs particularly in cases of mitral stenosis and in cases of hyperthyroidism. It may also occur as a part of the degenerative changes in arteriosclerotic heart disease. It frequently initiates the onset of cardiac failure, though it may occur, especially in the slow type, for long periods of time without causing any apparent circulatory embarrassment. It is always an indication of cardiac disease.

It is produced by an impure circus movement similar to that of auricular flutter, except that the auricles do not contract regularly and rhythmically, but contract in a rapid irregular twitching manner, termed fibrillation, at a rate of 400 or more a minute. No true auricular contraction results.

The ventricular rate is absolutely irregular, either rapid or slow. The rate depends upon the degree of functional block established. The pulse and cardiac rates are, therefore, absolutely irregular, and the pulse rate then becomes irregular as to rate, rhythm and volume. The rate is usually about 120 per minute, but may be slower, 75 to 90 per minute, in treated or untreated cases. Exercise, fever, or anything tending to increase ventricular rate will not tend to abolish the irregularity, but rather tend to aggravate it. It may occur constantly over a long period of time, or in paroxysms.

With the rapid rates of fibrillation the diagnosis often becomes uncertain as it may be confused with frequent premature contractions. If one listens long enough, however, it may be possible to determine that some of the longer pauses are not preceded by an extra or early sound as would occur in premature contractions.

Because of the irregular responses of the ventricles to the fibrillating auricles the volume of blood ejected into the systemic circulation varies. This explains the production of variations in the volume of the pulse and the intermission or pause that also often occurs at the radial pulse. This, therefore, produces a pulse deficit as described under premature contractions. A pulse deficit of 10 or more less than the apex is almost always auricular fibrillation.

With premature contractions there will be intervals of normal rhythm with equally spaced pulse beats and cardiac sounds between the irregularities. No such regularity exists at any time with auricular fibrillation.

There is usually considerable disability in untreated cases of auricular fibrillation. It is a common condition. Some cases do very well over a long period of time, 30 years or more, when a slow ventricular rate is maintained spontaneously or by digitalis therapy.

Digitalis is the drug of choice. If slowing does not occur with adequate digitalization either the drug is not potent or hyperthyroidism is the underlying causative factor. Quinidine is now used less than formerly, though it is occasionally of value, especially in the paroxysmal type, or in the absence of cardiac failure. The presence of cardiac failure or long standing fibrillation is an indication for digitalis and a contra-indication for quinidine. Digitalis usually does not stop fibrillation but slows the ventricular rate so as to enable it adequately to maintain the circulation. The sudden transition from long standing auricular fibrillation to a normal mechanism, if possible, is undesirable because of the possibility of the production of emboli by whipping of a piece of mural thrombus within the auricle. Such an accident may, of course, occur during the course of fibrillation.

### PULSUS ALTERNANS

Pulsus alternans is not a very common arrhythmia, though it may be found more frequently if we will but look carefully for it. It consists of a variation in the volume of the pulse so that there is an alternate strong and weak beat. The intervals between the beats are regular, and it should not be confused with the pseudo-alternation that occurs with pulsus bigeminus. It may be possible to detect this variation with the palpating finger, but most frequently it can only be demonstrated with the use of the sphygmomanometer. After the pulse has been obliterated by pressure in the cuff, when the pressure is slowly released only one half of the pulse beats are felt to come through, and when the pressure is further released the full number of pulse beats is felt. The sounds over the brachial artery will alternate in intensity just after they become audible, or only the strong ones will be heard at this point. With a further release of pressure the alternate intensity will usually become audible. This type of examination should be routine in suspected or definite cardiac disease. Sometimes the alternation may be heard and felt only after premature contractions, but this has the same significance as the constant type.

In regularly beating hearts, not with paroxysmal tachycardia, pulsus alternans indicates heart muscle damage of a serious nature. It is not seen in normal hearts. It is very common in hypertensive heart disease, disease of the coronary vessels, and valvular heart disease. It generally occurs with rates over 90 per minute and disappears when the rate approaches 70 per minute. Its mechanism is thought to be due to myocardial fatigue as a result of damage, producing variations in the strength of contractions.

The prognosis with pulsus alternans is serious. Usually such patients have a life expectancy of one or two years, though exceptional cases may live for five years or more.

In the absence of cardiac failure patients with pulsus alternans should be carefully regulated as to activity. The coronary vasodilators such as theophylline (aminophylline 1 1/2 grains (0.10 gm.) three times daily) or theobromine (5 grains (0.3 gm.) three times daily), are recommended.

### SUMMARY

It is seen that most of these arrhythmias can be diagnosed clinically at the bedside, while others can be strongly suspected when their mechanism and characteristics are understood. Sinus arrhythmia, partial heart block, premature contractions and auricular fibrillation can usually be diagnosed without any difficulty. Pulsus alternans can be recognized by the pulse and the use of the sphygmomanometer. Complete heart block can be suspected, often to a point of certainty, as can also auricular flutter and paroxysmal tachycardia. These latter three are those that are most difficult of absolute diagnosis and most frequently necessitate the use of the electrocardiograph.

Of these, sinus arrhythmia is always, and premature contractions are usually, without particular clinical significance. The others are of considerable diagnostic and prognostic importance.

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# THE PHYSIOLOGY OF HYPERTENSION*

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The blood pressure varies as the product of the cardiac output and the peripheral resistance in the smaller vessels. To a minor degree it depends on the elasticity of the large arteries. The cardiac output depends on the venous return, the force and the rate of the heart beat. Other factors remaining unaltered, an increase in cardiac output raises, and a fall in output lowers, the blood pressure. The peripheral resistance is found chiefly in the tonically contracted arterioles, especially those of the splanchnic area and the skin, and to a less extent in the capillaries. Normally the greatest fall of pressure takes place while the blood is flowing through the arterioles; but a definite further fall occurs in the capillaries too. The peripheral resistance may be influenced by active changes in the caliber of tissue capillaries and by back pressure effects due to high venous pressure.

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The degree of contraction, or tone of the arterioles, and probably also of the capillaries and veins, is under the continuous control of the vasomotor center which is continually sending out excitor impulses along vaso-constrictor fibers to the arterioles to maintain their normal degree of tone. The frequency of these impulses is modified by factors which influence the vasomotor center. Thus asphyxia, or the injection of histamine, increases the discharge. On the other hand, the injection of adrenalin may cause complete cessation of the discharge in sympathetic nerves for several minutes.

A depressor point is described 3 mm. behind the vasomotor center which, when stimulated, gives rise to a fall of blood pressure. Vasodilator fibers are found: in the sympathetic nerves, in the cranial and sacral autonomic, and in the posterior nerve roots.

Various factors influence the vasomotor center. Among them are: the higher centers, radiation from the respiratory center, $CO_2$ tension, and oxygen lack.

### THE SINUS AND AORTIC NERVES

These are the afferent nerves principally responsible for stabilizing the blood pressure and preventing it from varying very much. The afferent nerves from the carotid sinuses and the aortic arch normally carry up a constant stream of afferent impulses which exert a tonic inhibitory influence on the vasomotor center. Section of either pair of nerves raises the blood pressure (more especially if the other pair has previously been cut). A rise of internal pressure in the carotid sinuses reflexly produces vaso-constriction.

Occlusion of the carotid arteries lowers the pressure in the sinuses, and so reflexly raises the blood pressure. Acute complete cerebral anemia, from occlusion of the carotids and vertebrals, may produce a huge rise of blood pressure, partly reflexly from the collapsed sinuses and partly directly because of $CO_2$ accumulation in the brain.

The sensitivity of the sinuses to internal pressure change is remarkable; a deviation of 10 mm. is sufficient to cause a reflex response. If the reflex effect on blood pressure of raising the pressure in the sinus from zero to various levels is noted and plotted, an S-shaped curve is obtained. There is a threshold value for the sinus pressure, below which no reflex is set up; at the other extreme there is a maximum effective pressure beyond which there is no additional response (this varies between 150 and 300 mm.). The curve is steepest in the normal blood pressure range, and it is interesting to note that the actual turning point agrees very closely with the normal average level of blood pressure in the particular tends to deviate Thus, when the blood pressure tends to deviate from the normal, the receptors in the sinuses will respond in a very sensitive manner, will affect the bulbar center appropriately, and will rapidly restore the blood pressure to its usual level.

The aortic nerves from the aortic arch function in exactly the same way as the sinus nerves and in a complementary manner.

In aortic regurgitation, the left ventricle is hypertrophied, the output of the heart is large, and the systolic blood pressure is abnormally high. This probably sets up an exaggerated depressor sino-aortic reflex at the height of systole, and great arteriolar relaxation; the pressure in the arteries consequently falls rapidly towards the end of systole. The reflex is thought to be partly responsible for the collapse of the pulse and the low diastolic pressure which are characteristic of the condition.

The peripheral nerves contain both depressor and pressor afferents, and by suitably selecting the type and strength of stimulation one or the other group can be brought into action.

In regard to the relation of the adrenal medulla to blood pressure, two facts are worth mentioning: there is, or may be, a constant secretion of adrenalin which may help to maintain arteriolar tone and blood pressure at rest; adrenalin secretion is reflexly modified (via the sinus and aortic nerves) according to the level of the blood pressure: a fall of blood pressure stimulates, and a rise of blood pressure depresses adrenalin secretion.

There is believed to be a cardiac center in the floor of the fourth ventricle in the region of the vagus nucleus. It is described as consisting of two portions: an inhibitory center and an accelerator center.

The rate of the heart is controlled mainly by varying the degree of vagus tone (i. e. vagal inhibitory activity). The rate of the heart is mainly affected by: impulses from the higher centers; respiration; reflexly from the cardio-aortic area, the carotid sinuses and from the right auricle and great veins; $O_2$ and $CO_2$ content of blood; body temperature; intracranial pressure; adrenalin, thyroxin, and muscular exercise.

The sinus and aortic nerves are, again, mainly responsible for stabilizing the heart rate in the normal resting individual. Section of the sinus nerves or aortic nerves alone, usually results in cardiac acceleration. They therefore exercise at rest a tonic inhibitory influence, tending reflexly to retard the heart. A rise of internal pressure in the carotid sinuses or in the arch of the aorta reflexly slows the heart, a fall of internal pressure accelerates it.

External compression of the carotid sinus stimulates the adventitial sensory nerve endings and reflexly slows the heart. Very marked slowing may be obtained in arteriosclerotic subjects, probably because the sensory endings are pressed against the hardened media and so receive vigorous stimulation. The vagus nerve in man is comparatively inexcitable to mechanical stimulation.

The injection of adrenalin into an intact animal in large doses raises the blood pressure, and the heart is reflexly slowed via the aortic and the sinus nerves. After section of the vagi, adrenalin quickens the heart from direct action on the sympathetic endings. Large doses of adrenalin (1.5 c.c. in man) quicken the heart secondarily to increasing the metabolic rate.

### CONTROL OF NORMAL BLOOD PRESSURE

I will now summarize the salient facts in regard to the control of normal blood pressure. In the normal resting body the blood pressure is steadily maintained within comparatively narrow limits. Other things being equal, the blood-flow through the brain will vary directly with the blood pressure. A pressure which is much below normal is unable to drive an adequate amount of blood to the brain against the force of gravity. If the blood pressure is raised excessively, it serves no useful purpose and imposes an additional burden on the heart. The desired constancy of the blood pressure is attained mainly reflexly by the buffer nerves, the aortic and sinus nerves, principally by means of the variable inhibitory influence which they exert on the cardiac and vasomotor centers and on adrenalin secretion. A rise of blood pressure at rest increases their inhibitory activity, a fall of blood pressure lessens it, and may also bring into action pressor fibers which are believed to arise from the aorta and carotid sinuses. In exercise the blood pressure rises, in spite of the sino-aortic nerves, mainly owing to increased cardiac output.

### HYPERTENSION

Hypertension may be transient, periodic or chronic in nature. Most of the transient attacks may be regarded as physiological in character; exercise, digestion and emotions playing the dominant role.

Hypertension has been classified in various ways; I shall attempt to consider it from the physiologic viewpoint of: disturbances in cardiac output, vascular changes, and disorganization of cardiovascular reflexes. Observations indicate that increased heart rate produces at most only a moderate hypertension which affects systolic pressure chiefly. This is the case in thyrotoxicosis, for example, where the cardiac output is almost double the normal. Systolic pressure is frequently elevated, but, on the other hand, it may be quite within normal ranges. The diastolic pressure is seldom elevated; hence, a large pulse pressure rather than hypertension is the most constant vascular phenomenon. The final circulatory effects, like the metabolic, resemble those of exercise in many respects. In both, the metabolic rate is increased; in both, the cardiac output augments in response to the greater need for oxygen. Also the tendency for increased cardiac output to elevate the arterial pressure is counter-balanced, more or less, by pronounced dilatation of blood vessels which incidentally favors a greater blood flow through organs and promotes radiation of heat from the skin.

The blood pressure is affected similarly when the circulating volume is increased, but the compensatory mechanisms are somewhat different. There appears to be no question but that a continued abnormal intake of fluid, such as obtains in heavy beer drinkers, leads successively to diastolic distention, increased cardiac output, hypertrophy and hypertension. Many patients with polycythemia show no increase in blood pressure or cardiac hypertrophy and the cardiac output does not appear to be increased, but in others there is systolic hypertension so that the cardiac factor is significant.

Increased peripheral resistance is the most common cause of hypertension in man. This may be due: (1) to increased tonic contraction of normal arterioles followed after a prolonged period by morphological changes, or (2) to primary inflammatory and degenerative changes of the arterioles by virtue of which their lumen is diminished or obliterated. In addition, arteriosclerosis of the aorta and large branches may increase arterial pressure as a result of secondary reactions.

Generalized spasm of arterioles accounts for transient hypertension associated with emotional disturbances, cerebral anemia, asphyxial and anoxemic conditions and with increased intracranial pressure; also the acute hypertension associated with eclampsia and uremia. Vasomotor spasm may be due to psychic, reflex, mechanical or chemical actions upon the vasomotor center or upon the peripheral mechanisms themselves.

The proximity of the emotional and autonomic centers in the diencephalon makes it conceivable that an inordinate bombardment of the vasomotor center can occur during emotional stress and as a result of nervous strain, thus offering an explanation for the frequency of hypertension in nervous states. Stimulation of epinephrin secretion has also been postulated. There have been several recent reports of cases of paroxysmal, and later continuous, hypertension in which paraganliomas of the adrenal medulla have been shown to be the offending etiologic agent, the removal of which leads to recovery. In one case crystalline epinephrin was recovered from the tumor. Hypertension is an outstanding sign in the syndrome of pituitary basophilism, in which there is frequently, if not always, involvement of the adrenal cortex.

Reflex bombardment of the vasomotor center may account for transient and paroxysmal hypertension associated with tabetic crises, angina pectoris and other painful conditions. Deprivation of blood supply to the kidney, pancreas or heart, may also give rise to reflexes causing widespread vasoconstriction. Persistent elevation of systolic pressure can be produced experimentally in dogs by partial reduction of the renal blood flow. General anoxemia, changes in cerebral blood supply and increased intracranial tension, cause a stimulation of the vasomotor center. It is therefore conceivable that cerebral anoxemia due to spasm or sclerosis of the cerebral vessels may also be a factor, particularly in cases that show changes in retinal vessels. The trend of opinion is that many cases of so-called essential hypertension, certainly in their initial stages, are due to a functional spasm of the arterioles. This does not mean that arteriolar or arterial lesions may not develop eventually. According to one conception, such continued arteriolar contraction leads successively to hypertrophy, exhaustion and degeneration of the arteriolar muscle, followed by fibrosis, an effort to replace degenerated muscle.

The cause, or causes, of such prolonged spastic contractions have been sought but not found. In addition to various nervous factors, many chemical substances, products of metabolism and of extraneous agents, have been carefully studied as possible causative factors. No crucial evidence has been presented that such substances as urea, uric acid, guanidine or various amines, are concerned, either in acute hypertension such as occurs in uremia and eclampsia, or in the more chronic form associated with renal insufficiency. Cholesterol and sodium chloride retention, an abnormal calcium-potassium balance, excess of epinephrin, toxins of bacterial and gastrointestinal origin and many other chemical substances have been considered and studied, but no conclusive evidence of their guilt has been found. There are pressor substances in blood, but hypertensive blood seems to contain no more than normal.

## PATHOLOGIC STUDIES

The conception that a generalized arteriolar sclerosis occurs in essential hypertension is prevalent. Pathologic studies have shown that inflammatory and degenerative changes of arterioles are found, in the order of frequency and severity, in the kidney, spleen, pancreas, liver, brain, retina and gastrointestinal tract. But attention has repeatedly been directed to the fact that such lesions are often limited to a few of these organs and when more extensively distributed, do not produce sufficient resistance to peripheral flow to account for the extreme hypertension encountered. Physiologic experiments have demonstrated that an extreme degree of vascular narrowing must occur, and that in the splanchnic area, in order to cause even a temporary great elevation of pressure. Unless, therefore, the arterioles of the abdominal organs are widely involved, morphologic changes alone cannot account for the hypertension. In accord with this interpretation are the facts that diastolic blood pressure fluctuates considerably and can be significantly decreased by bodily and mental relaxation, by diet and by the use of vasodilating drugs. It has been shown, however, that thickening occurs in arterioles of skeletal muscle obtained by biospy from cases of hypertension, and a correlation exists here with the postmortem findings in internal organs. Such data indicate that structural changes may occur more generally than has been believed. Whether these changes are primary and initially cause hypertension or whether they are the result of prolonged hypertension due to functional causes, remains a question.

Since clinical hypertension is frequently associated with sclerosis of palpable vessels and since arteriosclerosis of the aorta and its branches is found postmortem, it was thought for a long time that the decrease in elasticity involved was physically responsible for hypertension. It may now be regarded as demonstrated that this is not the case, for arteriosclerosis and hypertension frequently occur independently, and experiments have shown that unless the force of cardiac contraction be increased secondarily, decreased arterial elasticity does not cause much elevation of systolic pressure; on the contrary, its chief action is to increase the pulse pressure.

The possibility remains that initial arteriosclerotic changes involving the aorta and sinus caroticus may produce degeneration of nerve terminals and thus permit generalized vasoconstriction owing to removal of moderating reflexes from these regions. This possibility is supported by the claims: (1) that degeneration of nerves has actually been demonstrated in arteriosclerosis and hypertension, and (2) that section of these nerves in animals leads to hypertension, which may or may not be so, and I for one, doubt it. This possibility is not supported by the clinical demonstration that the sinus caroticus reflex is no different than in normal, or if anything, is more easily evoked by pressure than in normal subjects; and no correlation seems to exist between hypertension and pathologic changes in the sinus caroticus region. While this suggestion therefore requires confirmation, it serves to direct attention to a fact that stabilization of blood pressure at a normal level does not necessarily imply constant cardiac output and peripheral resistance but a perfect coordination between the two. Every alteration in the rate and output of the heart and every variation in the caliber of the peripheral arterioles should be accompanied by an alteration in pressures. Such, however, is not the case in normal persons; on the contrary, the blood pressures tend to remain quite constant. This stability is attained through well-balanced compensatory mechanisms. Thus, if a primary vasoconstriction occurs and arterial pressures have a tendency to rise, reflexes are set up from the large vessels which slow the heart, reduce its minute output and so restore the pressure to normal levels. If the heart accelerates and increases its discharge, as it does during exercise, thereby tending to increase the systolic and diastolic pressure, a reflex dilation of the arterioles is induced which tends to restore pressure relations to their normal level again. In these and similar ways, the compensatory reflexes prevent great fluctuations in arterial pressures. When they are not functioning properly, the pressure relations are continually high.

It must not be inferred that decreased elasticity of the larger arteries does not modify the arterial pressure relations in clear-cut cases of arteriosclerosis or that the dynamics of the arterial circulation are fully accounted for on a basis of increased peripheral resistance alone. A large proportion of cases with hypertension have a large pulse pressure; the diastolic pressure being elevated relatively less than systolic. This is contrary to dynamic effects produced by increased resistance alone. Consequently, contributory factors must exist which modify pressure relations. Increased systolic discharge by the hypertrophied ventricle is perhaps one factor. The diminished extensibility of the arterial system may act to reduce the diastolic pressure and to accentuate the pulse pressure.

### ARTERIOLAR SCLEROSIS

The commonest disease in which deviations from the normal blood pressure are seen is arteriolar sclerosis. In this condition there is increase in the peripheral resistance which must be overcome if an adequate circulation is to be maintained. The elevated peripheral resistance shows itself by heightened diastolic pressure. This may be recorded at 90 to 160, or occasionally more, and constitutes what is commonly called true hypertension. This leads to ventricular hypertrophy and as long as the heart can increase its contractile force so as to add, after the valve is opened, one-half the pressure necessary to open the aortic valve, and thus maintain an adequate pulse pressure and an adequate circulation, the individual may suffer no manifestations of hypertension. This is why hypertension is frequently not manifested until late, or only discovered by accident in a routine examination. When the heart begins to fail it is shown by a decrease in the systolic pressure which necessarily means that the pulse pressure is lower, since systolic pressure is, physiologically, only the sum of diastolic and pulse pressures. Since the diastolic pressure does not fall, because it cannot, the decrease in systolic pressure is totally at the expense of the pulse pressure and must eventuate in circulatory failure. As long as the individual's hypertrophied heart can maintain a pulse pressure which is approximately one-half as great as the elevated diastolic pressure a fairly adequate circulation can be maintained. This is why occasionally patients are seen who carry on for years with diastolic pressure of 110 to 120, and systolic pressure of 170 to 180.

It is necessary to distinguish the elevated systolic pressure which occurs in aortic sclerosis from true hypertension as described above. When, with advancing age in certain individuals the aorta and great vessels lose their normal elasticity there is gradual elevation of the systolic pressure with little, or no elevation, of the diastolic pressure. This characteristic deviation from normal relationships of blood pressure also is an adaptation to permit the patient to maintain an adequate circulation even after loss of the elastic recoil of the great vessels which normally occurs at the beginning of diastole. The sudden distension of the elastic aorta at systole and its recoil after closure of the aortic valve at the start of diastole are important factors in propelling the blood because they assist in permitting a more gradual fall of pressure through the arterial tree.

Unless there is concomitant peripheral sclerosis to increase the peripheral resistance, the diastolic pressure usually remains normal, and there seems to be little additional work thrown upon the ventricle, because the heart is usually not enlarged. This type of vascular disease, with its characteristic adjustment in blood pressure, is the type seen most often in elderly people and is compatible with normal expectancy of life. This type of hypertension may pass into a malignant one. In a number of instances the splanchnic and renal sclerosis suddenly develops into a malignant and progressive renal disease which, after a brief or protracted, occasionally stormy course, leads to renal insufficiency and true uremia; the genuine contracted kidney. The physiology of the sudden turn in the course of the disease is not fully understood. It is probably not due to impaired kidney function.

### CONCLUSIONS

High blood pressure is frequently a symptom. The high pressure in certain cases of suprarenal tumors may be considered a symptom of suprarenal hyper-activity, red hypertension as a symptom of general or splanchnic sclerosis, while in malignant sclerosis the pale hypertension is not a mere symptom, but the cause of the fatal disease; it is the cause of the contracted kidney. It is therefore, in itself, in the late stages, also not a compensatory phenomenon. In red hypertension, if one accepts the assumption of a decreased arterial dilatability as the cause of the pressure elevation, the blood pressure increase becomes significant as a compensatory mechanism. Through it is secured a normal nutrition of the organs involved. As Volhard asks, is it not the cause of the favorable span of life and the practically normal capacity of these individuals? Would not the blood supply to the kidneys as well as to other organs suffer if the insufficiency of the peripheral pumping mechanism of the small arteries were not compensated for by a high pressure and increased work by the heart? As Volhard states, the vascular resistance of the kidney can be appreciably raised. As the renal vessels form more and more elastic tissue to replace disappearing musculature, they become less and less capable of dilatation and the free vasomotor play diminishes; the renal blood supply will more and more depend on the blood pressure which becomes more stable at a high level. Volhard believes that the utility of this apparent compensatory arrangement becomes doubtful when one considers the minor vascular changes in the kidneys to be the result of the wear under normal pressure, and their further development and the increased tone of the arterioles, to be the result of the vascular hyperdistension. There is, therefore, a vicious circle rather than a compensatory mechanism, But, granting that at the end a vicious circle is being dealt with, I venture to say that practically all elevated blood pressures are in their beginnings, and up to reasonably near the end, examples of the heart and vasomotor system attempting to compensate and to stabilize at new and higher levels.

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## THE PROBLEM OF VASCULAR DISEASE*

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The questions involved in a discussion of vascular disease obviously embrace a field too wide for detailed consideration in a paper of this type. The title was selected because it seemed desirable to mention in a very brief manner certain conditions which otherwise would have been excluded. In this latter group we find Raynaud's disease, of infrequent occurrence, but a condition which produces disability because of the great pain associated with the attacks. In its typical form the disease is a bilateral affection, without pathology in the blood vessels themselves, the pain being produced purely by spasm of the arteries with resultant ischemia and anoxemia of the extremities. Within recent years considerable relief has been afforded these sufferers by the intravenous administration of typhoid vaccine. The artificial hyperthermia associated with the reaction following this therapy apparently is responsible for relaxation of the spastic vessels with resultant improvement in symptoms. Lehman[1] has suggested elevation of the environmental temperature as a more simple procedure for the relief of arterial spasm, and indeed the use of pre-heated air about an extremity does seem efficacious. Of the drugs which have been used in this condition the most promising is acetyl-beta-methylcholine. The work of Goldsmith [2] indicates that this agent, when given by mouth, provides definite relaxation of spastic arterioles, as indicated by elevation of the skin temperature, with quite prolonged vaso-dilating effect, safety, and ease of administration. Little, if any, benefit is derived from this therapy in conditions where actual pathology exists in the blood vessels.

### BUERGER'S DISEASE

Buerger's disease, or thrombo-angiitis obliterans, is a similar condition in that the vessels of the extremities are involved, and is apt to be bilateral. In this instance, however, there is arterial pathology, and the lesions do progress to a degree which permits gangrene of the peripheral structures. In the past, drug and physical therapy have been beneficial in only a small percentage of cases, and there was a definite need for the apparatus introduced by Reid and Herrmann [3] which provides passive vascular exercise. This instrument alternately exerts positive and negative atmospheric pressures upon the extremity which is being treated, and this aids the flow of blood to and from the tissues of the affected part. Good results have been reported, not only by the original investigators, but also by various workers throughout the country.

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It is pointed out by the originators that the most dramatic results with the pavaex apparatus are obtained in those instances of acute arterial occulsion. The effects in thrombo-angiitis obliterans and arteriosclerotic conditions are not optimum, yet there has been a definitely progressive step. This is expected to prove quite effective in aiding to minimize, if not prevent, gangrene from arterial occlusion, diabetic conditions, and lesions of lesser importance. It must be noted that much harm may be done if cases for treatment are not properly selected, and active inflammation and phlebitis must be carefully sought for, as these conditions as well as others constitute contraindications.

Another inovation in the treatment of these arterial conditions is an electrically driven mobile bed suggested by Sanders [4]. With the patient upon the bed the head and feet are alternately lowered and elevated, thus providing passive filling and emptying of the vessels by force of gravity. This bed is so constructed that it is adjustable and is said to be particularly efficacious in the management of cardiac patients with edema.

### SURGICAL INTERVENTION

There has been much attention given the surgical relief of vascular conditions such as those mentioned. A recent critical review by de Takats [7] is most interesting. The results obtained by paravertebral injection of the sympathetic nerves with alcohol were gratifying, but the technical difficulties are stated to be as great as those of actual resection of the sympathetic nerves or ganglia. Evidently the latter procedures are increasing in popularity, and several types of operations are discussed. The results obtained by several authors are quoted, all of which are satisfactory. It is pointed out that sympathetic ganglionectomy in carefully selected cases provides the maximum degree of permanent vasodilation of the collateral circulation. Microscopic study of the excised ganglia has revealed a wealth of pathology, varying from simple degeneration to malignant changes. It is possible then that instead of being merely a measure for relief these operations may be directed toward the actual causes of many of the vascular diseases.

### MIGRAINE

The illness known as migraine is very distressing to its victims, and is relatively frequent in its occurrence. The etiologic factors concerned with the production of this irregularly periodic cephalalgia have been and are the subjects of extensive investigation. Changes in blood pressure, spinal fluid pressure, alterations of pressure in the various meningeal vessels, allergy, endocrine dysfunction and many other factors have been suggested as possible or probable caustive agents. Most authorities believe that whatever the nature of the exciting cause of migraine the actual pain is produced by some alteration in vascular function. Pool [5] suggests that the vessels of the dura may be the offenders as a result of perivascular edema with pressure upon nerve filaments. He [6] had previously noted that the dural vessels respond by constriction to intravenous injections of ergotamine tartrate. In this action the vessels of the dura are at variance with those of the pia and of the cerebrum which show no constriction. In clinical work I find that ergotamine tartrate (gynergen) affords one of the best agents for the relief of migraine. A word of warning would not be out of place, for an individual with sclerotic lesions of the peripheral vessels serious results, including gangrene, may follow the indiscriminate use of this preparation of ergot.

### ARTERIAL HYPERTENSION

The attention of the medical world has long been focused upon arterial hypertension. The rise of blood pressure secondary to sclerotic changes in the renal capillaries has been recognized for some time, but the correlation of primary hypertension and endocrine dysfunction is a matter of comparatively recent knowledge. My personal interest in these relationships was greatly increased when in February, 1935, it was my privilege to see with Dr. W. B. Allums a most interesting case:

### CASE REPORT

The patient was a white female, 69 years of age, who had always enjoyed the best of health. She stated that for several weeks she had noted a dull aching pain in the left kidney area, and that at times a mass could be felt in the upper left abdomen. There was no fever, and no other complaint. Examination revealed a skin which was waxy and dull in appearance, though anemia was not present. A firm mass, which was palpable in the upper left quadrant of the abdomen, was very slightly tender and movable. It could be elevated to the kidney area without difficulty, and was about twice the size of a normal kidney. Urologic studies were negative except that urography revealed abnormalities of the upper calyces of the left kidney, interpreted as pressure defects. A tentative diagnosis of solitary cyst of the left kidney was made. No other abnormalities were noted except that the blood pressure was found to be elevated, the reading being 200/100. Hypertension had been known to exist for six or eight years. Operation was advised, and upon exposing the left kidney a cystic tumor was found, extra-renal in origin. The tumor was elliptical in shape, covering the upper and lateral aspects of the kidney. It was separated from the kidney without difficulty and without hemorrhage, and the kidney was not disturbed. A most uneventful recovery was made. The pathologist reported a cystic necrotic tumor containing adrenal tissue, without malignant changes. After the operation, in about six weeks, the skin had cleared up remarkedly and the blood pressure was 160/90. Since that time the blood pressure has remained at or below this figure and the patient has been in excellent condition.

Kremer [8] has recently reported the incidence of hypertension and arteriosclerosis in a 14 year old child. Fatal termination of the condition was due to a cerebral vascular accident. Necropsy revealed the presence of medullary tumors of the adrenal glands, the left weighing 70 grams. On the basis of the history Kremer felt that everything except the adrenal pathology could be eliminated as the primary causative agent, and concludes that the vascular disease was entirely caused by the adrenal tumors. The presence of pituitary gland changes is suggested because of abnormal hair and fat distribution. Graef, Bunim, and Rottino [9] have reported a similar case in which the adrenal tumor was carcinoma, and in which an adenoma of indeterminate type was present in the pituitary gland. The effects of adrenal pathology upon the pituitary gland are discussed, but these authors arrive at no conclusions.

### RADIATION THERAPY

The work of Hutton [10], [11] on radiation therapy in hypertension came to my attention early last year. On the hypothesis that changes in both the pituitary and adrenal glands are jointly responsible for the production of primary hypertension, and believing that these changes were in the nature of hyper-function, Hutton administered x-ray therapy over the pituitary and the adrenal areas. The dosage first used was subsequently reduced, and his patients are now being given over each area 100 or less R units produced with 120 kilivolts, 5 milliamperes and filtration with copper and aluminum. The results reported are quite gratifying, 74 per cent of 134 cases showing improvement both in subjective symptoms and in reduction of blood pressure. Others are quoted as being improved in symptoms without reduction of blood pressure. Hutton does not present this as a cure for hypertension, but as a possible aid which deserves further investigation. He states that little or no benefit is to be expected in individuals who present well marked sclerosis, and that the best results are obtained in the comparatively early cases.

My experience with radiation in hypertension is limited to three cases. The results obtained have been far from remarkable yet do indicate to me that this may be, in carefully selected cases, a very definite aid.

### CASE REPORTS

One patient was an elderly female with advanced arteriosclerosis, and therapy was discontinued after failure of three treatments to afford any relief from symptoms or to provide any reduction of the blood pressure which was 260/120. Another patient was a female in the fifth decade of life, with moderate arteriosclerosis, but no evidence of renal impairment. The blood pressure was reduced from 240/140 (at which level it had been constant for several years) to 190/116 by a series of four treatments over the adrenal glands alone. During the following seven months the pressure gradually returned to 220/120, but with one treatment, using the technic of Hutton, these figures were reduced to 176/100. One month later the systolic pressure was still below 200 mms. My third patient was a young woman 28 years of age in whom hypertension had been known to exist for about two years. No other abnormalities were present, the vessels in good condition, normal renal function, and basal metabolic reading of zero. The blood pressure had been above 220 systolic on each of several observations. Two treatments were given and the pressure remained below 200 for more than four months. After this period two additional treatments were given with an interval of one week. She has not been seen for two months, but is to return when the pressure again reaches too high a level.

Surgery of the sympathetic nervous system has invaded the field of therapy for the relief of hypertension. The work of Crile and Crile [12] is outstanding, and the results reported are excellent, but it is unlikely that these procedures will receive widespread adoption within the near future.

## CORONARY DISEASE

Arteriosclerosis should likely be classed as the most important of vascular lesions, and sclerosis of the coronary vessels is the predominant factor to justify such a classification. The senile heart with fibrosis and muscle degeneration is dependent upon these vascular changes, as is the distressing symptom of angina pectoris which is complicated too frequently by coronary thrombosis. These subjects have received so much attention recently that nothing further will be mentioned at this time, except to emphasize the importance of recognizing these lesions in the earliest stages possible, and to repeat that the patients must be made thoroughly cognizant of their condition in order that cooperation may be obtained. It is of the greatest importance that we not be so zealous in our search for coronary pathology that other lesions which may cause precordial pain are overlooked. Most of these are familiar and simple conditions, such as a recent case well illustrates. The patient was a middle aged woman who had become almost an invalid because of attacks of pain in the precordium, left shoulder and arm. The shoulder muscles were atrophic from disuse. A diagnosis of angina pectoris had been made elsewhere five years ago and the patient kept comfortable with opiates. Physical examination of the heart and electrocardiography revealed nothing of importance, but an x-ray of the shoulder demonstrated a densely calcified sub-acromial bursa. The diagnosis then was very simple. This case is mentioned to stress the hope that we may use every possible aid to determine the presence of coronary disease and that none of our patients will be subjected to undue suffering and the necessary physical limitations unless the diagnosis of angina pectoris is correct.

## SUMMARY

Some of the more recent ideas regarding the pathology and treatment of certain of the vascular diseases are discussed. Three cases of hypertension treated by x-ray are briefly reported. A plea is made for elimination of the erroneous diagnosis of coronary disease.

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## THE MORTALITY OF CANCER

In spite of the efforts that have been made by the American Society for the Control of Cancer, an organization which is represented in every state in this country and which, in the State of Louisiana, is working with the Cancer Committee of the State Medical Society, deaths from this insidious disease continue to take more than 140,000 lives in the United States each year. Cancer has gone from seventh place in the cause of death to almost the top ranking position. It and deaths from "accidents" have increased, whereas nearly every other important cause of death has fallen off. The active and forcible Committee for the Control of Cancer under the chairmanship of Dr. Lanford is helping to teach the lay people as well as the medical profession the importance of the early recognition of this devastating disease. Again it hardly seems necessary to accentuate and stress in this connection the importance of the yearly health examination, an examination which, as mentioned by Carter Wood at the recent meeting of the Annual Congress of Medical Education and Licensure, should be a complete one. It should not be merely a perfunctory examination of the heart and the taking of the blood pressure, but particularly it should include a careful palpation of every woman's breasts past the age of 30; a vaginal examination should be part of the routine, as well as a rectal examination in both sexes. This for the doctor's part; for the patients' part they should be instructed that any lump in the breast, any unexplained bleeding or any visible or palpable growth should be investigated at once by a physician.

It is only through education that cancer is likely to be controlled to any very great extent and every resource should be called upon to bring about a lowering of the death rate in this disease. Tuberculosis is a splendid illustration of what can be done by widespread education in the importance of the early signs and symptoms of the disease.

On the first advertising page of the Journal will be seen the notice of the Women's Field Army of the American Society for the Control of Cancer, a nation-wide organization of the women of America who are planning to conduct a relentless war against cancer. The Cancer Committee of the State Society approves of what these women are attempting to do. It should form a splendid ancillary group which may be of assistance and help in the thankless efforts of the Cancer Committee through their organization. Anything or any group that can bring more pressure to publicize the importance of this disease, cancer, should make, if properly functioning, a valuable addition to the organizations attempting to make known the importance of malignancy as a cause of death.

## POST GRADUATE MEDICAL ASSEMBLY

For the last time for some months at least, an editorial on the subject of the approaching convocation in New Orleans, will be published in this Journal. The editor believes that this approaching meeting will offer a magnificent opportunity to the medical profession of Louisiana and the South to learn what is new in medicine or to acquaint itself with progress in various medical specialties. It is for this reason that we have kept harping on this particular subject. For the last time we stress again the obvious advantages of any post-graduate medical assembly and this one in particular with its large group of distinguished speakers, with its opportunities for scientific discussions and with its, by no means to be despised, social aspects.

## NUMBER OF PRACTITIONERS IN THE UNITED STATES

At the recent meeting of the Annual Congress on Medical Education and Licensure it was pointed out that, largely as result of a survey of medical schools made by the Council on Medical Education and Hospitals, there had been a decrease the last two years in the number of medical students registered in the schools of the country. This decrease amounts to 12 per cent in the two years. It represents the result of the Council pointing out to many medical schools that their facilities, during the depression, were over-taxed and inadequate to give medical students proper medical education. Medical schools have cooperated well with the Council in limiting the number of students they admit for a satisfactory medical training. A decrease of 12 per cent represents a very real cut in the number of practitioners who will appear as doctors in the next few years.

Another aspect of the diminution in the number of men who will come up for licensing by State Boards of Medical Examiners had to do with a marked decrease in the number of men who are studying in the European Universities. From the peak of nearly 3,000 such students a few years ago there has been a tremendous drop. This has been brought about by the enlightened policy of the licensing boards to limit opportunities to those men who have graduated from a school which is able to train properly the prospective American physician. Furthermore, the licensing boards of many states have taken the attitude that there must also be considered the important factor of an over-production of physicians, and this aside from inequalities in education, because many European trained students lack not only adequate teaching in the basic sciences but are not subsequently properly fitted through clerkship in the wards and internship after graduation to apply clinically what they have learned dogmatically.

The efforts of organized medicine to maintain high standards in the medical profession necessarily will bring about a diminution in the number of future doctors. This is encouraging, because at one time it appeared as if the medical profession might be swamped by a large number of embryo physicians entering its ranks, a number much greater than there is need.

## INJECTION TREATMENT OF HERNIA

For a hundred years it seems that the injection treatment of certain types of hernia has been practiced. For a while it was quite popular and then came a period of time when it was discarded and then about fifty years ago there was a recurrence of the interest in this particular therapeutic measure. Lately this method of controlling hernia has again been given considerable thought by operators, most notably in Europe and South America.

Crohn* writes that the injection treatment of hernia has been practiced very frequently by quacks. He states that the great majority of reported cases have not been followed-up so that the percentage of cures attributed to injection of a hernial sac is erroneous. There is a primary or early excellent result but if these cases are followed over a period of time it is found in many instances the hernia recurs. He doubts very much the report of some of the foreign observers that they have had figures up to 100 per cent cured. One of the most remarkable series of cases is that of Mestre who lists 15,000 cases in which injections were made over a period of twenty years with a 98 per cent cure, but Crohn reiterates there is no mention of follow-up.

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*Crohn, N. N.: The injection treatment of hernia, J. A. M. A., 108:540, 1937.

The paper follows, after the introductory review of literature, with the reports of experiments by the author. He devised experimental studies which showed that the injected chemical irritants produced an acute inflammatory reaction which subsequently is replaced by chronic inflammatory changes and eventually resulted in the formation of fibrous connective tissue. The experimental work proves the method is capable of effecting pathologic changes which produce scar tissue and block up the hernial tract. Later in his communication Crohn says that the cases for this method should be carefully and suitably selected. Best results occur in patients with oblique hernias readily reducible and readily kept reduced by a truss. Small recurrent and small direct hernias may be successfully treated. The sclerosing solution that he used consists of phenol, forty parts; 95 per cent alcohol, thirty-five parts; oil of thuja, twenty-five parts. Following injection occasionally there is some swelling of the scrotum and its contents.

The method is advantageous particularly for those who do not wish to have surgical operations to relieve their difficulty and would otherwise have to wear a truss. Unfortunately abuse is easy and might result in general condemnation of a method which has certain definite values.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

## THE NORTH LOUISIANA SANITARIUM

The meeting of the North Louisiana Sanitarium Staff was called to order by the President on January 26, 1937, with twenty members and several guests present. After disposal of routine business, attention was turned to the scientific program.

Dr. P. D. Abramson presented the end results of several cases of skin grafts and a series of lantern slides, giving the classification of the various methods of skin grafting and the advantages of each. The cases were discussed by Dr. Oxford, who presented technic and care of skin grafts. Further discussion was given by Drs. Nicholas and Rigby.

Officers for 1937 were elected as follows:

| | |
|---|---|
| Dr. J. M. Gorton | President |
| Dr. L. F. Gray | Vice-President |
| Dr. H. M. Trifon | Secretary |

H. M. Trifon, M. D., Sec.

## SCHUMPERT SANITARIUM

A meeting of the Schumpert Staff was called to order by the President, Dr. T. J. Fleming on February 9, 1937. After partaking of a very delicious dinner, the members met in the lecture hall and the minutes of the previous meeting were read and adopted.

The scientific program was as follows:

Dr. C. S. Sentell read a paper on "Tubercular Peritonitis". The most essential points of his paper were the division into the acute and chronic forms and method of treatment, also the value of roentgen ray in treating these cases. The following doctors discussed the paper: C. R. Gowen, George Wolfe, O. C. Rigby, J. H. Cassity and O. A. Eaddy.

Dr. V. P. Blandino presented a short paper on "Treatment of Pneumonia." In this paper he discussed the use of serum therapy in the various types. The pneumothorax treatment was not recommended by the essayist. Dr. N. G. Bender opened the discussion and was followed by Doctors George Wolfe, C. R. Gowen, Oxford and Captain Byrnes.

The Memorial Committee reported on the death of Mr. S. C. Garrett, the father of Doctors B. C. and George Garrett.

The Hospital report was read by the secretary.

W. L. Atkins, M. D., Sec.

## HUTCHINSON MEMORIAL CLINIC

*Symposium on Petrositis*: Conducted by the Department of Otolaryngology, Dr. R. Hume, presiding.

Pathology of Petrositis (Dr. H. J. Schattenberg, Department of Pathology): From a pathologic standpoint petrositis may be defined as an inflammatory process of the petrous or pyramid portion of the temporal bone quite often associated with middle ear or mastoid infection. The pathology varies with the anatomic structure of the bone involved and this anatomic structure again varies at different age periods. During infancy and early childhood the process of air cell formation or pneumatization of the petrous bone is begun but does not reach its completion until puberty. The mastoid air cells are fairly well formed by the age of four. In the very young, bone marrow function, both red and white, is rather extensive and the petrous portion of the temporal bone shares in this activity. It is possible, therefore, that this location may be the seat of a special type of petrositis due to a marrow cavity involvement which had better be termed osteomyelitis. In the adult, however, in whom marrow centers are no longer functioning in this locality and pneumatization or air cell formation has taken place, we now see a different type of petrositis, that is, an ordinary air cell or bony tissue inflammation or osteitis. Where air cell formation in the petrosa has been extensive, the pathology may simulate that of the diseased mastoid in which pneumatization is usually very marked.

The most common causative micro-organisms associated with petrositis are the streptococcus hemolyticus, staphylococcus or pneumococcus. Of the latter the Type III pneumococcus is especially a prominent offender. The infection may spread to the petrosal cells by the blood stream or lymphatics although lymphatic spread is yet to be definitely proved. Spread by direct extension from an acute otitis media or mastoiditis involving adjacent air cells and passage through their thin walls to other more distal healthy air cells is no doubt the common method of spread. The earliest pathologic change noted is a localized filling of the air cells and osseous interstitial spaces with neutrophiles, serum, some fibrin and a few red cells. The bone cells and calcified tissues soon show evidence of necrosis and softening. The necrotic bone is rapidly absorbed, leaving a localized abscess mass. Often small pieces of necrotic bone may be noted in this mass. As a chronic stage is reached, the abscess may become lined by granulation tissue and it may still later be walled off by fibrous tissue. The abscess material may liquefy, become serous and have a gross appearance similar to that of a cyst.

In those cases of petrositis which terminate fatally there may be noted at autopsy, either frank meningitis, brain abscess formation or dissemination of the infection through the blood stream with multiple pyemic abscess formation, more especially in the lungs. The bacteria first gain entrance to the venous plexus around the cartoid artery draining into the cavernous sinus, superior and inferior petrosal sinuses and finally into the jugular vein which carries the infection to the lungs. Subdural or brain abscess formation and meningitis, of course, result from direct extension of the infection through eroded bony structures or through lymphatic spread.

There is a point which I wish to stress before closing. A varying number of cases diagnosed and treated as mastoid infection have later been found, either clinically or at autopsy, to have had also a rather extensive petrositis.

Clinical Aspects of Petrositis (Dr. R. Hume, Department of Otolaryngology): Petrositis is not a new condition. Troelsch is 1867 gave an excellent description of the clinical entity as we know it today. It is only during the last ten years, however, that it has been discussed under the name of petrositis. Recent studies have been well directed and fruitful, providing valuable information concerning the pathologic changes and anatomic features of and about the petrous pyramid.

American otologists consider this condition merely an extension from the mastoid or middle ear and designate it as a perilabyrinthine extension into the petrous bone. In the mind of the average otologist some confusion was caused by Eagleton's very fine description of osteomyelitis of the petrosal tip, a condition occurring most frequently in children and usually during a course of septicemia. About the same time Kopetzky presented a surgical approach to the petrous tip, which, while highly successful in his hands, appeared extremely difficult and not devoid of danger in the hands of one less skillful. These studies along with observations of others have served somewhat to clarify the mooted points concerning the clinical manifestations noted as the result of petrositis.

The condition occurs during the course of an acute or chronic otitis media or following a simple mastoid operation. If during either of these courses the patient develops an intense retrobulbar pain, more severe at night, with a discharging ear and with or without the presence of sixth nerve paresis, we may suspect that the infection has invaded the petrous pyramid. Those cases in which these symptoms appear early in the course of otitis media require careful examination of the posterior paranasal sinuses as frequently this syndrome is manifested in cases in which the ear infection is merely incidental. If, after a simple mastoidectomy, the discharge continues and these symptoms occur, it is suggestive of extension of the infection through the cells posterior and inferior to the labyrinth. Early inspection and thorough removal of any necrotic areas in this region are often all that is necessary to curb further invasion. When occurring during the course of chronic otitis media or after simple mastoidectomy in which especial attention has been directed to the cells of the inner antra wall, the simple mastoid wound should be converted into a radical one and careful inspection of the pathways anterior, posterior and inferior to the labyrinth should be inspected for possible fistulous tracts. If one of these is found it should be followed until the area of necrosis has been entirely removed. If none is present, the wound should be dressed openly and further operative procedure discontinued, as often the symptoms may be effected by the intense congestion produced by the infected membranes of the middle ear on the venous supply of the petrous pyramid.

There are a certain number of cases in which no symptoms are present and extensive involvement of the petrosa is found at autopsy, the terminal stage of meningitis having occurred without the presence of the usual symptoms. In the fatal cases, death is produced by extension of the infection by way of the vascular supply or fistulous tracts to the meninges. A series of cases were then reported.

Roentgenology of Petrositis (Dr. L. J. Menville, Department of Radiology): While we appreciate the important role which the roentgen ray plays in the diagnosis of sinus and mastoid infections, we cannot say that it has the same accuracy in the diagnosis of petrositis. The inaccessibility of the petrous pyramid makes its roentgenography difficult. This is partly due to the fact that most of the petrous pyramid lies rather deep in the skull, and it is almost impossible to obtain a clear picture of its entirety without superimposition of the shadows of the sinuses, rim of the orbit, or tissues of the neck.

The most common type of petrosa is pneumatized only in a few areas. The surrounding bone is more or less densely trabeculated bone containing marrow. The shadow of this sclerotic or diploic bone, as the case may be, is superimposed on the few pneumatic cells, and, if they are small or located in certain areas, their shadows may be obliterated completely.

In interpreting roentgen ray films of a case of petrositis, we try to estimate the degree of pneumatization of the diseased side before the disease takes place. This can be done by comparing the diseased area with a film previously taken when disease did not exist. This, however, is not a very practical procedure.

In early cases of petrositis, we find on the affected side a slight increase in density due to an obliteration of the cell walls by containing fluid or granulation tissue. In the advanced cases, we find a decreased density due to a breaking down of the cell walls. If the petrous tip is not pneumatized, the above changes do not ensue. This is of importance to the clinician for in a diploic type, frank suppuration does not take place. It is a common procedure to compare the diseased petrosa on one side with the normal petrosa on the opposite side. It is sometimes difficult to make a diagnosis by comparing the two sides. If there is a history of previous otitis, and, especially if this otitis was present in infancy, variations in the pneumatized area are to be expected, resulting in an erroneous conclusion. I wish to emphasize that if there are roentgen changes in the petrosa, and there are no associated clinical symptoms pointing to petrous suppuration, a positive diagnosis from the roentgen ray alone should not be taken too seriously.

Due to the difficulty of visualizing the petrous pyramid clearly by means of the roentgen ray, many different technics have been employed. I shall present for your consideration a few of the most popular ones. Some roentgen ray films were then demonstrated.

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## GRADUATE SCHOOL
## LOUISIANA STATE UNIVERSITY
## MEDICAL CENTER
New Orleans

The scientific meeting of February, 1937, was called by Doctor J. T. Nix, Director of the Graduate School. Doctor Manuel Garcia presented the following paper:

### LIPOSARCOMA WITH CASE REPORTS

Malignant tumors of fatty tissue occur rarely. Only two persons thus afflicted have been seen at the Tumor Clinic, where, over a period of three years, more than nine hundred patients have come for observation and treatment for neoplasms of all types. Studies on the subject are sparsely scattered in the literature. Hence we believe the report of our cases may be of interest.

Case 1. J. B., a white farmer 76 years old, was seen November 23, 1933 with an ulcerated nodular, suppurating mass about 6 cm. in diameter, situated just below and in front of the left ear. It was very tender, red and immovable. Pain had been present for two months and the patient had been bleeding intermittently for a month. The patient's general health had been poor and his mentality was clouded. There was no indication of metastatic activity and no intra-oral or facial lesions were present. Biopsy was refused for several weeks during which roentgen ray therapy was administered with a total dose of 1600 roentgens. When permission for biopsy was granted a liposarcoma was found. Surgery was recommended but was rejected and 1800 mg. hrs. of radium were given interstitially on January 8 and 11, 1934. The lesion regressed and remained inactive for months but in May of that year he developed pneumonia and died on May 29, 1934.

Case 2. Mrs. R. S., a while female, 56 years old, reported January 17, 1935 with a large mass fully 20 cm. in diameter on the right side of the neck below and behind the ear. In June 1934 a lump in the back of the ear had started to grow rapidly and it had been ulcerated for two months. In December, 1934 considerable bleeding had followed the application of a caustic paste. The mass was tender, soft, pedunculated and had an ulcerated necrotic dome. No cervical or pulmonary metastases were evident. Biopsy showed liposarcoma with infection. On February 8, 1935 the tumor was excised and a week later the ear and a wide area of skin and subcutaneous structures in the neighborhood of the tumor, and their base thoroughly cauterized. From February 15 to March 12, 1935, 2000 roentgens were given to the ulceration that remained. In June of the same year 1600 additional roentgens were given to the same region. The ulcer healed completely in June, 1936. A right facial paralysis is present but the patient has remained well to the present time, just short of two years after operation, and the malignancy appears to have been extirpated.

Liposarcoma may occur at any age but greatest incidence falls between the ages of forty and sixty (Seids and McGinnis); they are said to affect females more commonly. Their malignancy is variable and while metastasis to the lung does occur, commonly their gravest features are ulceration, leading to hemorrhage and sepsis, and local recurrence after excision. Ewing describes individuals in whom the tumor has spread widely. Stout believes that the retroperitoneal tissues are the commonest site of involvement, but the seats for election for lipoma are equally favored by liposarcoma; these include the subcutaneous tissues, especially in the neck, the mediastinum or the omentum. Geschikter, in a careful study of twelve cases, found that four had developed in recurring fibrous and embryonic lipomas and that eight were primary. The sites of involvement included the lower extremity (five), the breast (three), the arm (two), and the back and thorax (one each). All but two of the patients were over fifty years of age. In each case recurrence took place and none was reported cured, but the average duration of the disease from the first symptom to the appearance of metastases was ten years.

Geschikter describes the histologic structure of the tumors as resembling fascial sarcoma, with compact spindle cells, sometimes interspersed with large giant cells that have degenerating nuclei and large pale foamy cytoplasm. Areas of embryonic and adult fatty tissue and a myxomatoid stroma are also found. Ewing states that they usually contain enough fat to be recognizable as lipomatous tumors but sometimes only traces of fat are present and the component cells give no clue as to their source. Because cellular, apparently encapsulated growths have a tendency to metastasize and to recur locally, Ewing advises painstaking extirpation of lipomas in which many cells contain scant amount of fat. In the gross, sarcomas are usually distinguishable from simple lipomas by their lesser mobility consequent to the infiltration of adjacent structures. The growths are soft, semifluctant masses, usually quite painless, but in the cases seen by us ulceration and secondary infection had made them painful and tender. Microscopically these two cases were very similar, being composed of very large oval, rounded and polyhedral cells with large nuclei. Mitotic figures were frequent and an abundant inflammatory exudate was present.

The genesis of liposarcoma is obscure. Seids and McGinnis believe they are either a sequel to trauma or a malignant stage of simple lipoma. The relationship to simple lipomas is intimate although in clinical experience lipomas rarely undergo malignant degeneration. There are no instances on record of inheritance in successive generations of a family as occurs with lipomas sometimes, and multiple primary liposarcomas are unknown. No connection to the peripheral nerves has been found, as is the case in fibroma, but a congenital tissue predisposition seems to be an essential factor. "It has been shown by Kolliker and Toldt that the fat lobules have a certain independence in development which constitute them a sort of primitive organ. The comparative isolation of the blood supply of these lobules reappearing in lipomas suggests that the anomaly predisposing to lipoma is connected with the distribution of blood vessels in the fatty tissues." (Ewing). A definite embryonic disturbance is associated with the lipomas of the kidney, where misplaced islands of capsular fat are said to give rise to the tumors. Other instances are seen in spina bifida, and intracranial growths. Ewing points out that hypertrophy of fat may occur in many forms, the causes of which he lists as follows: (1) obesity; (2) localized overgrowth of fat tissue, as in lipoma annulare colli; (3) replacement lipomatosis, as occurs in atrophic organs, such as the thyroid, the thymus, bone marrow, kidney, capsular lipoma (Virchow), and lymph nodes; (4) homologous lipoma, which includes the majority of the solitary subcutaneous lipomas; (5) heterologous lipoma from misplaced groups of embryonal tissue cells; (6) overgrowth of lipoma in mixed tumors and teratomas. The complex relations of these tumors is seen especially in the liposarcomas of the kidney, where admixture of muscle elements and areas of xanthomatous change have been found. In one instance adrenal tissue was found, and for this reason Ewing believes that they may be connected in some way with struma suprarenalis of Grawitz.

Geschikter has pointed out that "the location and age of onset of the tumor process in benign and malignant lipomas indicate that developmental processes play a dominant role. These developmental processes are influenced by the genetic pattern of tissue development and by the hormonal control of endocrine glands." Tumors of the lipoid group tend to follow in anatomic distribution specialized lipoid structures present in embryonic life. One of these is located between the shoulders, is derived from the lymphatic sacs near the jugular veins, is composed of vascular lymphoid tissue and contains many fat cells. It is said to correspond to the hibernating glands of insectivora and bats and has been termed the interscapular gland. Lipomatous tumors also apparently follow the same distribution as lymphatic cysts derived from the lymphatic sacs of the embryo, which correspond to the lymph hearts of the amphibia. It is of interest that both lymphoid tissue and lipomatous tissue develop late in the course of evolution and also late in embryonic life. "The hormonal influence which controls the further development of fat in later life is probably variable and derived from more than one source. Cushing demonstrated basophilic adenoma in the anterior pituitary lobe in Dercum's syndrome (adiposis dolorosa) . . . Basophilic hyperplasia of the hypophysis is well known during gestation. Lipomatous tumors also occur in Frohlich's syndrome, in which lesions at the base of the hypophysis have been described." The appearance of tumors after puberty suggests that the sex glands may have an influence on their inception. Geschikter was able to produce xantholipomatous proliferations of fat in the subcutaneous tissues of the monkey by injections of chorionic gonadotropic hormone.

According to Stout there are no reliable criteria on which to base a prognosis in liposarcoma. Since in all connective tissue tumors available methods of irradiation have proved ineffective, Quick and Cutler recommend radical surgery. Preoperative irradiation is said to be helpful in obviating rapid reappearance in the more malignant types. "In inoperable tumors, heavy external radiation alone or combined with interstitial radiation may succeed in arresting the disease and relieving pain and occasionally result in disappearance of the neoplasm over a period of years (Stout)." Coley's toxins may be helpful but we have had no experience with them.

### SUMMARY

Two cases of liposarcoma are reported and the clinical and histological characteristics of the growth are discussed. Although etiology remains obscure, aberrations of the development of embryologic lymphatic and lipomatous organs seem essential for their inception. Hormonal influences, especially of the anterior pituitary and the gonads may be determining factors in their activity. The growths usually advance slowly but have a strong tendency to local recurrence after excision and eventually metastasize. Treatment should consist of wide, thorough extirpation, preceded and followed by radiation if the growth is very cellular.

### REFERENCES

Ewing, James: Neoplastic Diseases.
Stout, A. P.: Human Cancer.
Geschikter, C. S.: Am. J. Cancer, 21:17, 1934.
Seids, J. V. and McGinnis, R. S.: Surg. Gynec. Obst., 44:232, 1927.
Quick, D. and Cutler, M.: Ann. Surg., 86:810, 1927.

## BAPTIST HOSPITAL

The regular monthly meeting of the Staff of the Baptist Hospital was held Tuesday night, January 26, 1937, in the Assembly Room at the Hospital.

Dr. Maurice Lescale read a paper on Hemorrhoids, which was very thorough and very interesting, and which was discussed by the doctors.

Dr. Lescale presented the etiology of hemorrhoids and especial emphasis was given to anatomic and inflammatory factors.

Classification (anatomic) into external and internal hemorrhoids was further subdivided according to development into three stages: the symptomatology, pathology, and treatment of each was given along with mention of complications and their treatment.

It was recommended that the use of the injection treatment be reserved for only first and some second stage piles. Surgery was recommended for most second stage and all third stage cases.

Dr. Wilkes Knolle, Chairman of the Executive Committee, read his report from that committee for the year 1936.

Election of Officers for the coming year was next held: Dr. E. McC. Connely was elected Chairman; Dr. H. B. Alsobrook, Vice-Chairman; Dr. K. Kelly Stone, Secretary; and Dr. W. R. Hardy re-elected Treasurer.

At this time the Death Report for the month of January, 1937, was read and Dr. W. D. Phillips brought out the interesting factor in his case of pulmonary embolism. This was discussed by the various doctors present.

H. C. Magee, M. D., Sec.

## MERCY HOSPITAL

It was deemed advisable to dispense with any scientific essays at this meeting because of the amount of business to come before the staff and also because of the scientific aspects of the mortality investigation.

Several interesting cases were presented and the following is only a brief summary of two of the cases:

Case No. 1. This case was one of amebiasis with amebic liver abscess. The patient was a young white male, 22 years old, who had been having vague pains for about three weeks and always worse in epigastrium. Recently there had been considerable chills and nausea following ingestion of any food whatsoever. Appetite was very poor and a papular rash had appeared over chest and abdomen; considerable wasting away during recent illness but no history of diarrhea. Clinically the case resembled somewhat that of a typhoid or dysentery infection but all agglutinations proved negative.

Only about four days after admission was blood found in stools and the liver began to enlarge below costal margin. Entameba histolytica cysts and trophozoites were finally found and despite care given, the patient gradually went down hill and died.

Especially interesting concerning this case was the fact that roentgen ray failed to show any elevation of diaphragm and that the abscess had ruptured into peritoneal cavity rather than above.

Autopsy findings revealed a large liver abscess involving the whole inferior, middle and posterior aspects of liver. Abscess had ruptured into peritoneal cavity and much blood and pus in cavity. Typical amebic abscess in gastrointestinal tract.

Case 2. This case was one of an aged man, 70 years old, who had been compaining of pain in abdomen and left leg and ran a high, persistent fever. Final diagnosis was malignant endocarditis, bacteremia, chronic nephritis and generalized arteriosclerosis.

The patient had been having high fever for several weeks, and only four days prior to admission had generalized abdominal pain and pain in left knee which probably was part of bacteremia.

On admission there was a fever of 102.5°, pulse 116 and respiration 28 and had appearance of one quite ill, weak, and extremely listless. Heart was quite irregular, abdomen distended, voided involuntarily and hematuria noted. The leukocytic count reached 21,250 with 89 per cent polynuclears. Blood culture revealed hemolytic streptococcic infection. Patient's fever ranged from 99-104°F. throughout. He died on seventh day after admission.

After discussion of the remaining mortalities, the Staff went into Executive session.

H. Ashton Thomas, M. D., Sec.

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# TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

MARCH 1. Board of Directors, Orleans Parish Medical Society, 8 p. m.

MARCH 1. Pathologic Conference, Hotel Dieu, 8 p. m.

MARCH 2. Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.

MARCH 3. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

MARCH 3. Mercy Hospital Staff, 8 p. m.

MARCH 3. Board of Governors, 1st and 2nd District Dental Society, 8 p. m.

MARCH 8. New Orleans Graduate Medical Assembly. Registration 8 a. m. General Sessions 9:30 to 11:30 a. m.

MARCH 8. ORLEANS PARISH MEDICAL SOCIETY (meeting dispensed with because of Assembly).

MARCH 9. New Orleans Graduate Medical Assembly.

MARCH 9. Charity Hospital Dental Staff, 8 p. m.

MARCH 10. New Orleans Graduate Medical Assembly.

MARCH 10. Touro Infirmary Staff, 8 p. m.

MARCH 11. New Orleans Graduate Medical Assembly.

MARCH 12. French Hospital Staff, 8 p. m.

MARCH 15. Hotel Dieu Staff, 8 p. m.

MARCH 16. Charity Hospital Medical Staff, 8 p. m.

MARCH 17. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

MARCH 17. Charity Hospital Surgical Staff, 8 p. m.

MARCH 18. 1st and 2nd District Dental Society, 8 p. m.

MARCH 19. Eye, Ear, Nose and Throat Club, 8 p. m.

MARCH 20. I. C. R. R. Hospital Staff, 12 noon.

MARCH 22. ORLEANS PARISH MEDICAL SOCIETY, 8 p. m.

During the month of February, the Society held one regular scientific meeting. The meeting of February 8 was dispensed with because of confliction with Carnival. The following program was presented at the meeting of February 22:

Lymphogranuloma Inguinale.
By: ........................Dr. James Wm. Tedder.
Discussed by Dr. E. von Haam.

Diseases of the Nervous System from Nutritional Deficiency.
By: ..............................Dr. Erwin Wexberg.
Discussed by Drs. C. S. Holbrook and L. L. Cazenavette.

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Dr. Nix appointed committees for 1937 during the past month, and as soon as all acceptances are received they will be published.

Dr. George S. Bel, Director of Charity Hospital, has announced the following changes in the several staffs.

Dr. Alton Ochsner, Dr. C. Walter Mattingly and Dr. H. B. Alsobrook were appointed Senior Visiting Surgeons. Other appointments, in the nature of promotions were: Drs. Edward H. Maurer, I. W. Kaplan, W. Robyn Hardy, and John E. Lindner, Visiting Surgeons; Drs. C. P. Cabibi and W. H. Roeling, Visiting Obstetricians; Drs. H. W. Kostmayer and P. T. Talbot, members of the Consulting Staff; Dr. W. A. Sodeman, Visiting Physician; and Dr. A. E. Fossier, Consultant in Medicine.

The new appointments included: Drs. Carroll F. Gelbke and C. V. Perrier, Visiting Surgeons; Drs. John G. Menville, P. E. Prouet, John F. Oakley, W. H. Meade, Robert Major, and Michael E. DeBakey, Assistant Visiting Surgeons; Dr. L. A. Golden, Assistant Physician; Drs . George Dechard, Jr., Grace Arabell Goldsmith, T. A. Watters, R. H. Bayley, and Ray L. Gregory, Assistant Visiting Physicians; and Dr. Joseph Ziskind, Assistant Visiting Pathologist.

Drs. Rigney D'Aunoy, Arthur Vidrine, C. C. Bass, and John H. Musser attended at Chicago, February 15, 16 the Thirty-Third Annual Congress on Medical Education and Licensure.

## SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE

The Southern Section of the Society will meet in the Richardson Memorial Building of Tulane University, March 5 at 8:15 p. m. A series of eight papers, of 10 minutes duration each, will be presented by the following: E. von Haam and R. Hartwell (2); J. C. Swartzwelder; B. I. Burns, J. D. Reese and A. G. Sellmann; H. M. Sweeney and H. S. Mayerson; W. A Sodeman, G. E. Burch and R. H. Turner; G. E. Burch and W. A. Sodeman; M. Bodansky and W. R. Cooke.

In response to the numerous telephone calls, the members of the Orleans Parish Medical Society are hereby notified that no Occupational Tax has been levied on practitioners of medicine for the past two years by either the State of Louisiana or the City of New Orleans.

Drs. N. K. Edrington and Earl A. Hogan were elected to Active Membership.

Dr. John M. Miles has transferred his membership to Greenbay, Wisconsin.

Dr. Roy H. Turner addressed the Medical History Society of Tulane University Medical School on "Gadgetry," at their meeting held on Friday, January 22. Dr. Alton Ochsner will present a paper on "Christian Fenger" at the next meeting of the Society, February 5, and Dr. A. E. Fossier will speak on "New Orleans Medicine" when the group meets on February 19.

Dr. Maud Loeber was elected on January 25, to the Presidency of the Metropolitan Board of the New Orleans Diocesan Council of Catholic Women, an organization which has as its aim the sponsoring of the newly formed study clubs, parent-teacher associations, the Confraternity of Christian Doctrine, and the Catholic Youth organizations for girls.

Dr. C. C. Bass attended the meeting of the Committee on Scientific Research of the American Medical Association, which was held in Chicago on January 31.

The meeting of the Southern Interurban Clinical Club, held on January 29 and 30, in Atlanta, Georgia, was attended by the following local members: Drs. John H. Musser, J. T. Halsey, Randolph Lyons, I. I. Lemann, C. L. Eshleman, Chaille Jamison, P. H. Jones, and Roy Turner.

At the annual meeting of the physicians and surgeons comprising the visiting staff of Charity Hospital, Dr. W. A. Love was elected President of the Staff; Dr. Frederick L. Fenno, Vice-President; Dr. Frank Chetta, re-elected Secretary; and Dr. Oscar Bethea and Dr. I. M. Gage were elected to the Board.

Dr. Ansel Caine attended the meeting of the Anesthetists Travel Club, January 3 to 8, 1937, at Los Angeles and San Francisco.

A meeting of the Touro Staff was held on Wednesday, February 3, at which the following officers were elected: Dr. L. R. DeBuys, Chairman, Dr. C. S. Holbrook, Vice-Chairman, and Dr. James D. Rives, Secretary.

## TREASURER'S REPORT

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| ACTUAL BOOK BALANCE: 12/30/36: | $1,784.43 |
| January Credits: | $2,046.44 |
| TOTAL CREDITS: | $3,830.87 |
| January Expenditures: | $1,194.83 |
| ACTUAL BOOK BALANCE: 1/30/37: | $2,636.04 |

## LIBRARIAN'S REPORT

The Library has loaned to doctors 664 books and journals during January, or more than one to each member of the Society. In addition 876 items have been loaned to students for overnight use, making a total of 1,540. These figures do not include the great use of books and journals within the Reading Rooms.

During January, 81 volumes have been added to the Library. Of these 14 were received by gift, 7 from the New Orleans Medical and Surgical Journal, 57 by binding and 3 by purchase. Notation of new titles of recent date is given below.

On request of physicians, members of the staff have collected material on the following subjects during the month:

Snapping fingers.

Polycythemia vera.

Seborrhea in relation to the eye.

Curriculum in post-graduate medicine.

Therapeutic use of sandalwood oil.

Urinary antiseptics.

Reaction of naphthalene on nervous system.

Splenic extract in treatment of non-union of fractures.

Granulosa cell tumors of the ovary.

Mortality from surgery of prostate.

Presacral neurectomy.

Fetal and neonatal mortality.

NEW BOOKS

Schumann, E. A.—Textbook of Obstetrics, 1936.

Bortz, E. L.—Diabetic Manual, 1936.

Carter, C. F.—Microbiology and Pathology for Nurses, 1936.

Keyes, E. L.—Urology, 1936.

Association of Life Insurance Presidents—Proceedings, 1936.

Surgeon-General of U. S. Army—Annual Report, 1936.

Surgeon-General of U. S. Public Health Service—Annual Report, 1936.

Surgeon-General of U. S. Navy—Annual Report, 1936.

Connecticut State Medical Society—Transactions, 1936.

American Surgical Association—Transactions, 1936.

New Jersey—Health Department—Health Review for City of Newark, 1930-35, 1937.

Wellcome Historical Medical Museum—Lister Collection, 1937.

Haller, Albrecht von—Dissertation on the Sensible and Irritable Parts of Animals, 1936.

Huddleson, I. F.—Brucella Infection in Animals and Man, 1934.

Pardo-Castello, V.—Diseases of the Nails, 1936.

Gilbert C. Anderson, M. D., Sec.

# LOUISIANA STATE MEDICAL SOCIETY NEWS

## THE MONROE MEETING

Members of The Louisiana State Medical Society: The various committees of the Ouachita Parish Medical Society are very active in working out the details for the annual meeting of the Louisiana State Medical Society in Monroe, April 26-28, 1937.

Plans are under way for "A Big Meeting". You are assured of entertainment in many ways. Hotel accommodations are ample, as Monroe has several first class hotels. Arrange now to be with us.

A current belief in this section that will one day become a tradition, is that anyone who has once tasted of Monroe's famous barbecued meats and drunk a little of its river water, is forever after afflicted with a nostalgia to return.

Perhaps that is one of the reasons why Monroe, Louisiana, in the heart of one of the world's greatest gas fields, bears the distinction of being chosen by group after group, year after year, as the best place in north Louisiana to hold a convention. Her citizens however, feel that the reasons are much more far-reaching than that.

In the first place, its strategic situation on the east bank of the Ouachita River at a converging point of rail, water, highway and air transportation, makes it easy of access from all sections of Louisiana. The main lines of the Missouri-Pacific and Illinois Central railroads serve it from north to south and from east to west. U. S. 80, a paved thoroughfare from the Atlantic to the Pacific coasts crosses Monroe, as does U. S. 165 from the Canadian border to the Gulf of Mexico. Excellent air transportation is afforded in all directions, and for those to whom time matters little, year round navigation on the beautiful Ouachita River and its tributaries is possible.

Two excellent golf courses, a splendid municipal swimming pool, parks, moving picture theaters, and industrial plants peculiar to the section are other advantages that this thriving little city has to offer in the way of amusement and entertainment for visitors as well as for home folks.

Monroe is unusually fortunate in the number of its modern, up-to-date hotels, equipped to take care of hundreds of guests, and five auditoriums, ranging in size from little E's to Basses, are available for large and small gatherings.

A congenial atmosphere can be found for any life that the individual may choose, for a few days, or for keeps. There are groups devoted to religious activities, music, garden, and literary clubs, a good public library, Little Theater organization, labor unions, civic clubs, two splendid school systems, and a branch of Louisiana State University which offers two years of college work.

Although a well-defined progressive spirit is manifested in the paved streets of the town, excellent shopping facilities and other "city" advantages, there is a delightful easy going tendency on the part of the people to take life fairly briskly, but without bustle. A custom that still prevails, is for acquaintances, even fairly casual ones, upon meeting downtown, to adjourn to the nearest coffee shop for a cup of the delicious brew, and to chat over the happenings of the day. Gentlemen on streetcars and buses in Monroe never let a lady stand, and the courtesy, broadmindedness and hospitality of the people are bywords among those who have visited here.

Such an atmosphere is the outgrowth of the rich and interesting historic background that the city boasts.

The oldest town of north Louisiana, and one of the first settlements in the entire state, it was first known as Ouachita Post, taking its name from an extinct Indian tribe that disappeared long before any permanent settlement was made. The earliest settlers were chasseurs and couriers de bois, who in all probability penetrated the section after LaSalle and Tonti in 1682 sailed the mighty Mississippi from Canada to its mouth, and before the famous Natchez massacre. Even before that time, many historians are agreed that De Soto in all probability, passed down the Ouachita River by the present site of Monroe in 1542, a short time before his death near what is now Ferriday, Louisiana. Tradition as well as history gives credence to this belief. An old negro resident of Monroe is fond of telling how he had it from his grandpappy, who in turn was told by his grandpappy's pappy, "Dat de Injuns used to tell 'bout de time when 'Soto passed down de Ouachita."

The real beginning of the town however, occurred in 1783, when Don Juan Filhiol, a Frenchman in the service of the King of Spain, was commissioned by Don Estevan Miro as commandant of the Ouachita Post. With his wife, the beautiful Francoise Poiret of Opelousas, the intrepid Don established himself permanently at Ouachita Post, and a few years later, after a stockade had been constructed as a protection to the settlers from unfriendly Indians, the name of the post was changed to Fort Miro, in honor of Estevan Miro, governor general of the province of Louisiana.

The little settlement grew slowly, and in 1819, when the first steamboat, the James Monroe, chugged up the Ouachita from New Orleans, the name of the village was changed to "Monroe" in honor of the boat, and in commemoration of the memorable event.

Many steamboats followed the James Monroe, and cotton, which had become the principal crop in the section, became a highly profitable one. Growth was steady and sure, and while there were no great booms, there was scarcely a setback except that due to the Civil War.

It was not until 1916 however, that the event occurred which was to make Monroe both a metropolitan and an industrial center. This was the discovery of natural gas in the area. The extraordinarily rapid growth of a population of 5428 in 1900 to 26,028 at the time of the 1930 census, was largely due to the influx of industries such as carbon black plants and paper mills, which were attracted to the section by the cheap fuel adjacent to inexpensive labor and excellent transportation facilities.

In keeping with the march of time, the city of Monroe owns and operates its public utilities, supports a modern airport, splendid sanatoriums, a radio station, and public and private business enterprises of all kinds, all of which justify its standing as the fourth city of the State of Louisiana.

It is asking a great deal of human imagination to bridge the lapse of time from Monroe of the past to scenes of the present day; to realize that the white ribbons of concrete on her streets and highways were once Indian trails; that only the pad of swift red feet fell, and slow moving wagons and buggies were seen, where now, automobiles of every description rush back and forth; that acre after acre of cultivated lands was once dense forests; that hunting and trapping constituted the major part of the active trade now in evidence—it is not easy to believe—but it is true!

Arrange now to come to the Monroe Meeting. We welcome each of you. Do not forget to bring the wife.

We await you.

Courtland P. Gray, M. D.,
Chairman, Publicity Committee.

## SHREVEPORT MEDICAL SOCIETY

The regular meeting of the Shreveport Medical Society was called to order by the President on February 2, 1937, with 41 members and four guests present. Minutes of the previous meeting were read and adopted.

Committee Reports: Resolutions upon the deaths of the fathers of Dr. B. C. and George Garrett and of Dr. Boone were read and the Society ordered that they be adopted and copies sent to the families.

Dr. George Wolfe, Chairman of the Program Committee, outlined the purpose of his questionnaire and urged cooperation of the members in aiding the Committee in furnishing good programs for the Society.

Dr. Lucas, Chairman of the Entertainment Committee, made a motion that the Secretary be instructed to write to Sheriff Hughes, thanking him for the courtesy extended the Society at our last meeting. Motion duly carried.

The Chairman then named members appointed to the Emergency Medical Relief Committee and Dr. J. M. Gorton, General Chairman, outlined the purpose of this Committee.

Scientific Program: Dr. Paul D. Abramson presented his experience with certain diagnostic measures in the study of Peripheral Vascular Diseases. His paper was discussed by Drs. Hargrove, Herold, Caldwell, Blandino, W. S. Kerlin.

Dr. Paul Winder outlined the modern method of treating vesicovaginal fistula, outlining important points in the preoperative, operative and postoperative care of these cases. He presented a case history of a typical instance.

Dr. S. C. Barrow presented some interesting roentgen ray plates, showing what was apparently a diverticulum of the cecum with the appendix arising from this diverticulum.

Unfinished Business: The Committee reported favorably on the application of Dr. Wilson. The Society then elected him to membership.

New Business: Dr. J. A. Hendrick made a motion that money segregated in the Permanent Home Fund be invested in Building and Loan stock at the discretion of the Permanent Home Committee. This motion was duly seconded and carried.

Dr. Barrow made a motion that the Shreveport Medical Society contribute $100.00 from its general fund to the Red Cross for flood relief. This motion was duly seconded and carried.

Dr. J. M. Gorton offered a suggestion that the Memorial Committee be instructed, in the future, to draw up appropriate resolutions, sending them immediately to the families and simply reading them as a report of activities at the following meeting of the Society.

Applications for membership in the Society were received from Dr. H. T. Best, Dr. Dave Kaminsky, Dr. J. S. Shavin and Dr. T. A. Hendrick. The applications, being found in proper order, were ordered to take the usual course.

Dr. Caldwell called attention to the fact that the Caddo Unit of the Louisiana Crippled Children's Society was planning to hold diagnostic clinics in neighboring small communities and urged cooperation of the medical profession.

Paul D. Abramson, M. D., Sec.

## EAST AND WEST FELICIANA BI-PARISH MEDICAL SOCIETY

A meeting of the Society was held in the staff room of the East Louisiana State Hospital at Jackson on February 3, 1937, presided over by Dr. S. L. Shaw, president. The session consisted of a supper followed by an excellent scientific program. The following scientific papers were presented: "Heart Disease in Pregnancy", by Dr. Guy Riche of Baton Rouge, "Stone Formation in the Urinary Tract" (with roentgen ray illustrations), by Dr. Edgar Burns of New Orleans, and "Artificial Therapy in Paresis or Neurosyphilis", by Dr. Guy Odom of Jackson. These papers were freely and favorably discussed by the members, and a vote of thanks was given to the speakers for their presentation. Drs. Riche, Burns and Odom were made honorary members of the Society.

E. M. Toler, M. D., Sec.

## LAFOURCHE VALLEY MEDICAL SOCIETY

The Lafourche Valley Medical Society met February 10 at Thibodaux. The scientific program consisted of two papers, the first by Dr. John Menville of New Orleans entitled "Treatment of Infection of the Lower Urinary Tract." The second paper on the program was read by Dr. Percy LeBlanc of Donaldsonville and was entitled "Bacteriophage as a Therapeutic Agent." The Society served a delicious banquet following the meeting which was very much appreciated.

## NEWS ITEMS

Dr. Oscar W. Bethea addressed the medical society in Beaumont, Texas, on February 8, discussing "Physical Diagnosis."

Dr. A. L. Levin gave a lantern slide lecture on "Gall-Bladder Disease" at the meeting of the Seventh District Medical Society in Welsh, Louisiana, on January 21, 1937.

P. Blakiston's Son and Company, Incorporated, announce with deep regret the death of the president, Kenneth M. Blakiston, on Tuesday, January 19, 1937.

The J. B. Lippincott Company announces the sudden death of William A .Widmer, for thirty-seven years with this publishing firm.

Passed Assistant Surgeon Roy E. Butler has been relieved from duty, U. S. Quarantine Station, New Orleans (Algiers) La., upon arrival of Assistant Surgeon Theo. L. Perrin; to proceed to Mobile, Ala., for assignment to quarantine duty.

Assistant Surgeon Theo. L. Perrin has been relieved from duty, U. S. Quarantine Station, Gallops Island, Boston, Mass., and ordered to the U. S. Quarantine Station, New Orleans, (Algiers) La., for duty.

Dr. Gabriel Steiner, former professor of psychiatry at Heidelberg University, Germany, has become affiliated with the Department of Pathology and Bacteriology of the Louisiana State University Medical School.

A southern sectional meeting of the American College of Surgeons was held in Atlanta, Georgia, on February 3, 4 and 5, with extensive clinics, papers, movies and operations. Drs. Thomas B. Sellers, Jas. T. Nix, Alton Ochsner and A. J. Hockett of New Orleans attended. Dr. William B. Clark, also of New Orleans, participated in the program of the Eye, Ear, Nose and Throat Section by invitation.

## FIFTH DISTRICT MEDICAL SOCIETY OFFICERS, 1937

President—Dr. C. P. Gray, Jr., Monroe.

Vice-President—Dr. Ralph King, Winnsboro.

Secretary-Treasurer—Dr. R. M. Simonton, Monroe.

Delegate—Dr. Marvin Green, Ruston.

Alternate—Dr. B. Spencer, Sterlington.

## TUBERCULOSIS AND PUBLIC HEALTH ASSOCIATION OF LOUISIANA

The Annual Meeting of this organization was held in the morning, January 27, 1937, at the Roosevelt Hotel. Following the business meeting, there was a luncheon at which Dr. William H. Perkins presided. Dr. Sydney Jacobs spoke on "The Present Outlook for the Tuberculous Patient."

At the afternoon session Dr. Joseph A. Danna presided, and the first event of the session was a Round Table Discussion on "Tuberculosis Clinics, Their Importance and How to Secure Them." Dr. John Signorelli, in leading this discussion, pointed out the necessity of there being adequate care for the tuberculous patient throughout the state, the necessity of recognizing early cases and above all the thorough and complete examination of contacts. Dr. J. M. Batchelor, who followed, showed that this was a problem of such magnitude that, in truth, it could be handled only by state funds supplemented by local contributions. Drs. A. J. Hockett and J. H. Musser spoke to much the same effect; that a more expensive program might be omitted for the present, and a start made by introducing clinics for the introduction of pneumothorax, which, it has been found, would rapidly make an open case a closed case. Dr. I. L. Robbins conducted a splendid Roentgen Ray Clinic as the last of the program.

At the business meeting, Dr. W. H. Seemann of New Orleans was re-elected president of the Association and Dr. W. H. Perkins was elected first vice-president to succeed Dr. H. E. Bernadas who resigned. The other officers were re-elected for a second term. The new members selected to serve on the Executive Committee were Miss Emma Maurin, Jess Heir, Dr. Sydney Jacobs, Dr. A. J. Hockett and Dr. I. L. Robbins.

## INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the State of Louisiana, which contain the following summarized information: For the week ending January 16, there was a very large number of influenza cases reported, 283 in all. The incidence of measles jumped from 7 cases, in the previous week, to 122 this week. Other diseases reported in double figures were as follows: 69 cases of pulmonary tuberculosis, 67 of pneumonia, 31 of syphilis, 21 of gonorrhea, 14 of whooping cough and 11 of diphtheria. The incidence of diphtheria showed a surprisingly gratifying reduction, the number of cases reported being only about one-third the five year average. Of the unusual cases, Caddo Parish reported 1 of smallpox and Orleans 1 of poliomyelitis. For the week ending January 23, there was some reduction in the incidence of influenza, 193 cases being listed. Pneumonia dropped to 52 cases. There were 27 cases each of diphtheria, gonorrhea and pulmonary tuberculosis, 23 of syphilis and 13 of chickenpox. A case of poliomyelitis was reported from Orleans Parish and one from Richland Parish. Four cases of spinal meningitis were listed from Orleans Parish and 1 from Acadia. The influenza epidemic showed an increase in the number of cases that came to the Bureau of Epidemiology during the week ending January 30, there being 235 such cases. Other double figure diseases included 48 cases of pneumonia, 40 of syphilis, 38 of gonorrhea, 14 of cancer and 13 of pulmonary tuberculosis. Another case of poliomyelitis appeared this week, this time in Bienville Parish. Influenza was still rampant, the week of February 6, with 291 cases listed. The following diseases, in order of frequency, were likewise listed: 45 cases of pneumonia, 30 of syphilis, 23 of pulmonary tuberculosis, 19 of gonorrhea, 18 of cancer, and 14 of diphtheria. There was some drop in the incidence of influenza during the week of February 13, 228 cases being listed. Other frequently reported diseases included 54 cases of syphilis, 35 of pulmonary tuberculosis, 34 of pneumonia, 28 of whooping cough, 15 of cancer, 12 of gonorrhea and 10 of scarlet fever.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census, reports that for the week ending January 16, 1937, there were 164 deaths in the city of New Orleans, divided 90 white and 74 negro. In the same week, there were 10 deaths under one year of age, divided equally between the two races. For the week ending January 23, there were 2 less deaths than for the previous week, five more in the white race and 7 less in the colored population. The infant mortality showed 16 deaths in children, of which 10 were white and 6 negro. For the week ending January 30, the deaths were 178 in number, of which 106 occurred in the white section of the city and 72 in the negro. The infant mortality was 19; thirteen of these deaths were in the negro race and 6 in the white. For the following week, ending February 6, there was a slight diminution in the number of deaths, these being reduced to 175, divided 112 white and 63 negro. There were 12 deaths in infants under one year of age, 5 of whom were white children and 7 negro infants. So far, for the first 5 weeks of the year, there have been 39 fever deaths than in the corresponding period last year.

## GRADUATE MEDICAL EDUCATION

The Dean of the Medical School of Columbia University, Dr. Willard C. Rappleye, announces a program of graduate medical education in this Medical School. The length of the course is apparently a minimum of three years and leads to the degree of Doctor of Medical Science. The fields of graduate study are:

Dermatology
Internal Medicine
Neurology
Obstetrics and Gynecology
Ophthalmology
Orthopedic Surgery
Otolaryngology
Pathology
Pediatrics
Psychiatry
Radiology
Surgery
Tropical Medicine
Urology

These courses will give an opportunity for advanced study to those men wishing to take the examination held by the various boards of medical specialties, and the program conforms to the standards adopted in 1934 by the Council on Medical Education and Hospitals of the American Medical Association and the Advisory Board for Medical Specialties.

## CONFERENCE ON FEVER THERAPY

In conjunction with the International Conference on Fever Therapy to be held at the Waldorf-Astoria Hotel on March 31, 1937, there will be a scientific and commercial exhibit staged.

The clinics will be held at the College of Physicians and Surgeons, Columbia University, New York City.

A large attendance of fever therapists from all over the world is expected. A very interesting and instructive program has been arranged and all of those who plan to attend the conference are urged to register promptly with the general Secretary, Dr. William Bierman, 471 Park Avenue, New York City. The registration fee is $15.00.

## ASSOCIATION OF MILITARY SURGEONS

The Association of Military Surgeons of the United States announces the appointment of Mr. Robert Lewin as Director of its convention exhibits.

Mr. Lewin has very successfully directed the commercial exhibits of the American Association of Railway Surgeons and the American Association of Orthopedic Surgeons for a number of years. This year he is also directing the commercial exhibit held in conjunction with the International Fever Therapy Conference at the Waldorf-Astoria, March 31, 1937.

The commercial exhibits of the Association of Military Surgeons have been creating more attention each year and the exhibitors have found this to be a highly profitable meeting.

Anyone desiring information in connection with the Military Surgeons 1937 convention to be held at Los Angeles, October 14-16, should address Mr. Robert Lewin, 505 N. Michigan Ave., Chicago, Ill.

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The International Congress on Hepatic Insufficiency will be held at Vichy, September 16-18, 1937.

## WOMAN'S AUXILIARY

### Louisiana State Medical Society

President—Mrs. James Byron Vaughan, Monroe.

President-Elect—Mrs. George D. Feldner, New Orleans.

First Vice-President—Mrs. F. G. Ellis, Shreveport.

Second Vice-President—Mrs. T. H. Watkins, Lake Charles.

Third Vice-President—Mrs. E. B. Middleton, Homer.

Fourth Vice-President—Mrs. R. R. Arceneaux, Welsh.

Recording Secretary—Mrs. C. Grenes Cole, New Orleans.

Corresponding Secretary—Mrs. Joseph P. Brown, Monroe.

Treasurer—Mrs. Courtland P. Gray, Monroe.

Parliamentarian—Mrs. R. T. Lucas, Shreveport.

## OUACHITA PARISH

Beautiful spring flowers banked the luncheon table at the Lotus Club where members of the auxiliary to the Ouachita Parish Medical Society gathered for their regular monthly social and program meeting, with Mrs. A. G. McHenry and Mrs. P. L. Perot hostesses.

Mrs. A. G. McHenry's talk on "Romance of Medical Men of the South," was an interesting feature of the luncheon hour. General conversation revolved around the state convention to be held in Monroe during the month of April.

Mrs. DeWitt Milam, Mrs. A. G. McHenry, Mrs. C. P. Gray and Mrs. R. W. O'Donnell gave an interesting report on the recent meeting of the auxiliary in Shreveport honoring the state president, Mrs. J. B. Vaughan, who, to the regret of every member, was unable to be present at this time.

Mrs. W. L. Bendel, Chairman,
Press and Publicity.

## CADDO PARISH

The Woman's Auxiliary to the Shreveport Medical Society entertained at the Junior League Style Revue at the Washington-Youree in honor of Mrs. James Byron Vaughan of Monroe, president of the Woman's Auxiliary to the Louisiana State Medical Society, and Mrs. Frederick G. Ellis of Shreveport, first vice-president of the State auxiliary. The models included fourteen young matrons, wives of Shreveport physicians.

We feel that we are particularly fortunate in having in Mrs. C. E. Rew, a parliamentarian who is also an excellent teacher. Taking advantage of her willingness to share with us her knowledge of Parliamentary Law, the committee on Public Relations organized a class among the members of the Executive Board. There have been five meetings, with two yet to follow, and they have been instructive and delightful. All of those who have taken this course are enthusiastic about what it will mean to them, and the committee feels that it has made a distinct and unique contribution to the matter of Public Relations.

We are happy to report that $194.19 was received for Preventorium Work through the sale of Tuberculosis Seals. Fourteen speakers were heard before forty-three Parent-Teacher groups and students. This appeal was not only made for the success of the seal sale but contained valuable information to these groups on tuberculosis, assuring them it was a disease that was curable. A distance of approximately four hundred miles was traveled to cover all schools in Caddo and Bossier parishes and city schools.

Mrs. W. R. Mathews, Chairman.
Press and Publicity.

## ORLEANS PARISH

On Wednesday, February 10, the Woman's Auxiliary to the Orleans Parish Medical Society enjoyed one of the delightful meetings of the year, when they entertained the mothers of both doctors and auxiliary members at a Valentine party. The club rooms were gay and attractive with spring flowers while each mother was presented with a corsage in honor of the occasion.

After an interesting musical program, the members, with their guests, enjoyed a social hour around the tea-table. It is always a privilege to entertain those so near and dear to us and so we still have something to look forward to on March 30 which is Doctor's Day, when we shall have the pleasure of doing honor to our own doctors.

Mrs. Edgar Burns, Chairman,
Press and Publicity.

## FURTHER NEWS FROM OUACHITA PARISH

**You are cordially invited:**

Won't you wives of all the "Medics"
Visit us at our Convention,
The many things we'll do for you,
I don't have space to mention.

A boat ride on the Ouachita,
You can't afford to miss ,
Convention folks in days gone by
Describe it as pure bliss.

Golf, banquets, bridge, or what you will,
What'ere you like to do,
Your happiness will be our aim,
So come, now this means you.

A meeting of the Executive Committee of the Woman's Auxiliary to the Louisiana State Medical Society was held in Monroe February 16, 1937 at the Lotus Club. Routine business was transacted. Mrs. J. B. Vaughan, State President, was hostess for luncheon, but in her absence due to illness, the Vice-President, Mrs. F. G. Ellis of Shreveport, presided. The following members were present.

Mrs. F. G. Ellis, Shreveport—Vice-President.

Mrs. A. A. Herold, Shreveport—Chairman of Legislation.

Mrs. Frank Walke, Shreveport—Chairman of Public Relations.

Mrs. G. D. Feldner, New Orleans—President-Elect.

Mrs. C. G. Cole, New Orleans—Recording Secretary.

Mrs. H. Marlatt, Homer—Chairman of Indigent Physicians.

Mrs. E. B. Middleton, Homer—Third Vice-President.

Mrs. C. P. Gray, Monroe—State Treasurer.

Mrs. D. T. Milam, Monroe—Chairman of Exhibits.

Mrs. J. Q. Graves, Monroe—Hygeia Chairman.

Mrs. A. D. Tisdale, Monroe—Program Chairman.

Mrs. A. G. McHenry, Monroe—Councilor of Fifth District.

Mrs. A. L. Peters, Monroe—Printing Chairman.

Mrs. R. W. O'Donnell, Monroe—Chairman of Finance.

## ATTENTION!! AUXILIARY PRESIDENTS AND CHAIRMEN OF COMMITTEES!!

Our State President, Mrs. J. B. Vaugham, has requested that all annual reports be sent in to her by April 6, 1937, as it is necessary for some of these reports to be sent to the A. M. A. Your cooperation will be greatly appreciated. Mrs. J. B. Vaughan's address is 2004 Riverside, Monroe, Louisiana.

In the April issue of this Medical Journal will be detailed information about the annual meeting to be held in Monroe April 26, 27, and 28, 1937.

An arrangement has been made with our local newspapers to publish an editorial honoring our doctors on "Doctor's Day." In addition to this, each doctor is to be remembered with a boutonniere and flowers are to be sent to each office on the morning of March 30. Open house for the doctors and their wives on the evening of the same day will be held.

Mrs. D. T. Milam,
Recording Secretary.

## JEFFERSON DAVIS PARISH

The Woman's Auxiliary to the Jefferson Davis

Parish Medical Society met in Jennings for their February meeting at the home of Mrs. John M. Whitney.

Mrs. R. R. Arceneaux and Mrs. Claude A. Martin contributed numbers relating to medical science.

Plans for the celebration of "Doctor's Day" were discussed, after which a social hour was enjoyed.

Mrs. Claude A. Martin, Chairman,
Press and Publicity.

DEAR READERS:

Don't forget to read the Woman's Auxiliary news now published in the "Journal" of the American Medical Association each week. These columns contain much of great interest to all of us.

The dates of the "Your Health" broadcasts are listed in the Journal under "Official Notes" in the Organization Section. Make note of them and listen in.

Mrs. George D. Feldner, State Chairman,
Press and Publicity.

# BOOK REVIEWS

*To Raise These Halt*: By Fred Rothermell. New York, Lee Furman, Inc. 1936. pp. 350. Price $2.50.

This novel centers around the medical practice of Dr. Norman Dour, trained in medical ethics to treat with sympathy and charity the ill in mind and body. The cheerless and unending ill luck which trail Dr. Dour's footsteps, even to final disaster, remind one of H. H. Richardson's Ultima Thule, published in 1929, the more so in that the drama of both stories makes the characters live. The present theme emphasizes the principles of medical ethics and tacitly would seem to attribute Dr. Dour's spiritual and financial failure to his following too closely in the narrow path thus marked, the while his confreres, laboring under no such inhibitions, enjoy a financially affluent practice. One wishes that the benefits of an ethical medical practice might have been as carefully portrayed as its hardships.

Mary Louise Marshall.

*Trachoma*: By A. F. MacCallan, C. B. E., M. D, F. R. C. S. London, Butterworth & Co., Ltd., 1936 pp. 225. Price L1.1.0. net.

When better books are written on trachoma, MacCallan's work will have inspired them. No one has had greater experience with "The Scourge of Human Sight", and probably no one has done more, directly or indirectly, to reduce it than the author. The style of this readable and interesting volume lends itself easily to visualization. It is written with a conviction contained in a few ophthalmic works. The author's discussion of the Clinical Manifestations and Stages of Trachoma which have become classic, illustrate that highly technical and difficult subjects can be presented understandingly in a simple manner. Chapters five and six on Differential Diagnosis and Treatment are gems of medical writing. The subsequent chapters on Pathological Anatomy, Epidemiology and the History of Trachoma are complete and thorough. The illustrations, which are almost entirely in color, are not numerous but very well done. The completeness and orderly sequence in the table of contents shows the extreme familiarity of the author with the subject.

Fortunately, for the good people of our state, but little trachoma exists in Louisiana. In other sections of the world, however, where trachoma is a major cause of blindness, ophthalmology and the public owe a specially deep debt of gratitude to the author for this outstanding work.

Chas. A. Bahn, M. D.

*Allergic Diseases*: *Their Diagnosis and Treatment*: By R. M. Balyeat, M. A., M. D., F. A. C. P. 4th ed. rev. and enl. Philadelphia, F. A. Davis Co., 1936. pp. 516. Price $6.00.

The fourth edition of Balyeat's book is somewhat disappointing. Since he first published his book, a great deal of additional knowledge in the field of allergy has been acquired; yet Balyeat, other than amplifying a few of the chapters, has included very little of this information. This edition contains essentially the same information as the previous editions. Only a few of the botanic surveys that have been made in various parts of the United States are listed by the author. In his discussion of ragweed hay fever he states that unless patients are desensitized with pollens to which they showed skin reactions, other than ragweed, although, symptoms do not start until ragweed pollination, in addition to ragweed desensitization, good therapeutic results cannot be expected. On the other hand, on page 33, appears this interpretation of skin tests "of asthmatic children—95% were found sensitive to some food, but on careful study it was considered that food was a definite factor in only 50 percent". In one instance, he considers a positive skin reaction of etiologic significance despite the absence of clinical sensitivity, and in the other, he finds positive skin reactions of no etiologic significance.

The chapters devoted to skin tests are very sketchy. Other than stating that intradermal testing is complicated, further utilitarian information is lacking. The description of the preparation of extracts is only vague. The statement "the solution used for extracting is made from glycerin, salt and other chemicals" without further details, is certainly not informative. The chapter devoted to desensitization contains only the most meager information. Other than stating that the principal underlying desensitization is that of building up a tolerance, further details of treatment are left out. Initial dosage, rate of increase in dosage, tolerance dose, maintenance dose, intervals between injections, the duration of treatment, are omitted in the chapter on specific treatment.

Balyeat devotes considerable space to the use of lipiodal in the treatment of asthma; particularly in the type asthma he calls intractable. However his definition of what constitutes intractable asthma is quite different from what is generally understood by the term. If I understand English, intractable means unmanageable, yet the author defines intractable asthma as "patients who between periodic attacks of severe asthma had only mild attacks daily or raised considerable purulent mucus or semi-purulent material". By this definition, the great majority of asthmatics would be classified as "intractable". And this is far from the case.

There are chapters on various other manifestations of allergy, to-wit., conjunctivitis, migraine, urticaria, dermatoses and so forth.

B. G. Efron, M. D.

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*The Truth About Bright's Disease*: By William R. Ohler, M. D., Cambridge, Harvard University Press, 1936. pp. 80. Price, $1.00.

This small book represents one of a group of popular lectures given by the Harvard School of Medicine. The subject matter briefly covers the types of nephritis in a form both scientifically correct and linguistically lay.

I. L. Robbins, M. D.

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*Annual Reprints of the Reports of the Council on Pharmacy and Chemistry* of the American Medical Association. Chicago, 1936. pp. 139. Price $1.00.

This small brochure of 139 pages contains the reports of the Council that have been adopted and authorized for publication during 1935. In addition to the reports and editorials which are reprinted from the Journal, there are other reports, of less general interest, which appear here for the first time. To anyone who is not specifically interested in certain of the proprietary drugs discussed here, the chief value of the book is that it is a convenient collection of recent information on several drugs of current interest. Prominent among the preparations which are thus included are acetyl beta-methylcholine, aminoacetic acid, liver concentrates, cyclopropane, dinitrophenol and gonococcus bouillon filtrate.

R. P. Walton, Ph. D.

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*New and Nonofficial Remedies*, 1936: Containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1936. Chicago, 1936. Price $1.50.

Each annual edition of this publication further emphasizes the increasingly vital function of the Council. The critical evaluation of new proprietary drugs progressively becomes the responsibility of organizations rather than of individuals. The Council, with its staff of consultants, continues to perform a service to the profession which is unequalled by any similar organization. This edition differs from the preceding chiefly by revisions in the articles dealing with amidopyrine derivatives, local anesthetics, anti-luetic drugs, calcium compounds, carbon tetrachloride, cinchophen derivatives, liver preparations, serums, vaccines and hormone preparations.

R. P. Walton, Ph. D.

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*Diseases of the Coronary Arteries and Cardiac Pain*: Edited by Robert L. Levy, M. D., Macmillan Co., New York, 1936, pp. 445. Price $6.00.

The very great increase in the number of deaths in the United States attributed to coronary obstruction reflects the more general recognition of the extreme importance and the increasing attention being paid to this disorder. There has been a tremendous amount of work and innumerable papers have been presented on this subject. It seems particularly appropriate that Levy, one of the foremost students of this heart disorder, should collect the information gleaned in the last twenty years, into a single volume. Especially is he to be complimented on the fact that for the authors of the various sections of this symposium on coronary diseases he has selected as co-writers the outstanding contributors in this country to the knowledge of coronary arterial disease. Also is it his good fortune to have these men accept their assignments. The introduction was written by Alfred Cohn who gives a succinct discussion of what is to follow. He notes that most of the authors have abandoned the old term of angina pectoris and have used in its place the expression, coronary pain. The reviewer, as is Dr. Cohn, is apparently somewhat in doubt about the advisability of making such a change in medical terminology.

No man could more fittingly have been selected to present the opening historical note than Dr. James B. Herrick who is truly responsible for introducing to the medical world coronary occlusion as a clinical entity. In the next chapter, Dr. Joseph T. Wearn, whose studies on coronary circulation and anatomy of the heart are well known, gives a most clear and illuminating description of the arteries and veins of the heart.

To Dr. C. J. Wiggers is assigned the section on the physiology of the coronary circulation, a most comprehensive and scientific exposition. The pharmacology of the coronary circulation is presented by Dr. Fred Smith and the pathology of the coronary arteries by Dr. W. C. VonGlahn. These sections are concise but complete. The following section is by Dr. James C. White on pathways of pain and then comes another chapter by Dr. Wiggers, thought provocative and interesting, on the physiology of cardiac pain. Statistics are dwelt upon by Dr. Louis Dublin.

Levy has presented in a masterful way the next two chapters dealing with arteriosclerosis of the coronary arteries, and syphilis of these vessels, as well as two subsequent chapters on the treatment of these two conditions. These chapters are entirely adequate, extremely practical and will probably be more read by practitioners of medicine than any of the other chapters because after all it is in the facts brought out in these chapters that the average medical man is primarily interested.

W. J. Kerr has a difficult apportionment but, in his chapter on the less common affections of the coronary arteries, he gives a splendid account of embolism, periarteritis nodosa, rheumatic arteritis and aneurysm of the coronary vessels. Paul White's section on the clinical significance of cardiac pain is a splendid chapter. Here cardiac pain is used in part as a synonym for angina pectoris.

Any reviewer would expect a dissertation by Frank Wilson on electrocardiographic changes that take place in disease of the coronary arteries to be outstanding. It is.

The last part of the book has to do with surgical treatment of disease of the coronary arteries and cardiac pain (angina pectoris). These chapters are by James C. White, H. L. Blumgart, and Claude S. Beck. Of the methods recommended by these several authors in the treatment of these conditions the alcoholic injections have received a certain measure of success but certainly there is not the enthusiasm for this mode of treatment that there was a few years ago. As for total thyroidectomy, again the operative procedure is not quite as cheerfully agreed upon as a valuable measure as it was several years ago. Certainly, as Blumgart says, the cases must be properly and carefully selected and it is still a debatable question whether or not they should be operated upon earlier than they are now, if the measure is to be well worth while. Beck's operative procedure, to supply additional blood to the heart by operation, is still within the realm of experimental medicine and surgery.

This book represents one of the really valuable contributions to medical literature that has appeared for some years. The subject matter is clearly expressed by those well qualified to write on their assigned subject. The format is excellent, the illustrations are clear and well selected.

J. H. Musser, M. D.

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*You Must Eat Meat*: By Max Ernest Jutte, M. D., New York, G. P. Putnam's Sons, 1936. pp. 164. Price $2.00.

This small book is an interestingly written and well presented discussion about a subject which is of vital importance both to physician and layman. The first portion of the book is devoted to the physiology of the gastrointestinal tract and the body chemistry in general, in terms readily understood by everyone. Following this is a consideration of diets—fads, fancies, and facts—and, as a climax, the explanation and application of the Salisbury Meat Diet in various conditions.

It is a book well worth reading, primarily because of the different perspective of the much mooted question, the place of meat in the diet, and also for the world of informaton about the body and its mechanics and its chemistry.

Peter Everett, M. D.

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*Practice of Medicine*: By Jonathan Campbell Meakins, M. D., LL. D. St. Louis, C. V. Mosby Co., 1936. pp. 1343. Price $10.00.

Every now and then out of the welter of innumerable inconsequential books there appears one that arrests our attention and compels our earnest consideration. In a trice the inescapable fact is borne upon us that here is a book that is a literary achievement, a real contribution to medicine. Such a volume is the large tome devoted to the practice of medicine by Jonathan C. Meakins. It contains over 1400 pages and its 500 illustrations, numbering many splendid roentgen ray photographs and colored blood pictures, constitute a novel and vital part of its composition. The eminent author, impressed with the power of pictorial portrayal in the teaching of medicine, has pioneered a path in the making of text books of medicine that should be fruitful of great good in pointing out a potent method for those interested in advancing and disseminating medical information.

As one reads this large volume one soon notes to what a notable degree of success the author has coupled encyclopedic knowledge and wisdom with a practicability that should be of real value to the practitioner for whom the work is primarily intended. Yet, paradoxical as it may sound, in its largeness lies its principal weakness. The author has attempted to incorporate so much material into one book that he has been obliged, of necessity, to make many comparatively important subjects entirely too brief. All of the systems of medicine that are the province of the practitioner in general medical practice are treated with the exception of the skin and its diseases. In the chapters devoted to Diseases of Circulation and Respiration and especially those portions which deal with physiology, normal and abnormal, of the heart, the lungs and the circulation, the author achieves his tour de force. And this in itself is more than sufficient compensation for the weakness noted above. Several of the chapters have been assigned to various contributors, specialists in their subjects and all of them have performed a splendid task in keeping with the high quality of the book, set by Meakins.

The introduction to the Practice of Medicine is a medical masterpiece. It deals with the art of history writing, the approach to the patient and a most invaluable analysis of the symptoms presented by a thousand patients in whom he found that the six most frequent symptoms encountered in their order of frequency were: pain, weakness loss of weight, fatigue, dyspnea and fever.

Another accomplishment worthy of note, particularly in a text book, is the very recent information to be found within its covers. One feels that the author has been so far ahead in the van of modern medical achievements that, through his own accomplishments and that of the small but brilliant coterie of medical investigators and physicians, he has been able to incorporate into his book information that is not even now the property of many good current medical journals.

At the end of each subject is a splendid reference list and the general index is most usable.

The critic is aware that only too often the evaluation of a book in such a general way can be of little value to the reader to help him in an effort to arrive at a conclusion as to the real merit of the book. To this the answer of the critic must be that so large a book of so much diversified material cannot be elaborated upon. The detailed consideration of every subject would entail space far beyond the ordinary confines of the space allotted to book reviews in the journal. It becomes necessary, therefore, to draw general conclusions which are in his opinion honest and sincere. That remarks may occasionally appear entirely too laudatory is a human failing, the common heritage of all who read even though we are cognizant of the necessity of the critic being detached and objective in his approach.

It behooves the critic to say, in all frankness, that the book is not perfect in all respects. There is not a well proportioned balance of the material. Changes in subsequent editions must be made. More detailed methods of treatment might be most welcome. As for the book itself one might find fault with a bulkiness that does not lend itself readily to the comfort of the chair. It is definitely difficult to handle but it is certainly worth the trouble and more than repays the one who reads it.

I. L. Robbins, M. D.

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*Diseases of Infancy and Childhood*: By Wilfred Sheldon, M. D. (Lond.), F. R. C. P. (Lond.), with a foreword by G. F. Still, M. A., M. D., LL. D., F. R. C. P. Philadelphia, P. Blakiston's Son & Co. 1936. pp. 738. Price, $7.00.

In a well illustrated and beautifully edited volume of some 700 pages, the author has condensed a wealth of pediatric knowledge and clinical experience. Yet, condensation has not been attained at the expense of completeness, as nothing essential is omitted, nor through the sacrifice of style, for the book is delightful to read.

This book should be equally useful as a text for medical students and as a reference for the practicing pediatrist.

Ina M. Harper, M. D.

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*International Clinics*, vol. 4, 1936. Phila., J. B. Lippincott Co., 1936. pp. 352.

In this new volume are again found many timely articles. To mention only a few, and by no means the only ones of superior merit, are those dealing with gastroscopy, nutritional edema, cardiac arrhythmias, and collapse therapy in tuberculosis. As so often remarked in the past, it again justifies the time any physician may employ in its perusal.

I. L. Robbins, M. D.

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*Text-book of Pathology*: By Francis Delafield, M. D. and T. Mitchell Prudden, M. D.; Revised by Francis Carter Wood, M. D. New York, William Wood & Co., 1936, 16th ed. pp. 1406. Price $10.00.

The revision of a work which has enjoyed the status of a standard text in pathology since its first edition in 1885 necessarily requires considerable thought and experience on the part of the reviewer and his assistants. This edition reflects such in its clear, concise and accurate presentation.

The general outline of the past editions, consisting of: first, General Pathology; second, Special Pathology; and third, Post-Mortem Examinations, has been retained.

Part I, containing the fundamentals of pathology, has been revised to include an excellent presentation of the effects of such physical agents as excessive and deficient heat; roentgen rays; and radium. Other added features include footnotes containing technics for the demonstration of various products of cellular degeneration and references for additional reading on the subjects presented.

Part II, entitled Special Pathology, contains a discussion of the pathology of the various organs, arranged according to systems. The most marked revision of this part of the work is in the chapter on the Nervous System. Valuable advances in staining technic, neuro-physiology, and, also, neuro-surgery, are included here. Some advantageous changes are also noted in the chapters on muscles, bones and joints, and the reproductive organs of the female.

Part III, which deals with the technic of the postmortem examination, includes valuable additions in the technic of preservation of various organs.

The book is fairly well illustrated by excellent drawings and by photographs, some of which are very good.

The clear, concise and accurate way in which this book is written makes it easily read by both student and practitioner. It may also be used to an advantage as a reference by the specialist in this field.

Edwin H. Lawson, M. D.

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*The Adrenals*: By Arthur Grollman, PhD., M. D. Baltimore, The Williams and Wilkins Company, 1936, pp. 410. Price $5.00.

This complete volume contains a resume of the literature on the adrenals to date, together with the author's personal research and conclusions. Not one phase of the vast subject is left untouched.

The anatomy, gross, microscopic, and comparative, is discussed in detail in Part I. In Part II the medulla and its secretion, epinephrine, are widely reviewed, the chemistry, pharmacology, physiology, and therapeutic uses of epinephrine being presented in an orderly, concise, detailed manner.

The cortex is the subject matter of Part III, and the author delves into the effects of adrenalectomy, the preparation of the cortical hormone, its assay, and the relation of the adrenals to other organs.

Part IV is devoted to a study of Addison's disease, tumors of the adrenals, the adrenogenital syndrome, and other pathologic abnormalities of the adrenal.

In this work, the author attaches the name "androgenic" to the embryonic tissue found in the adrenal, as hypertrophy of this tissue gives rise to masculinization of the female, and such nomenclature seems justified.

The volume, though of some value to the practitioner, should be of greater interest and aid to the pharmacologist and physiologist, and especially to the research worker in these fields.

Conrad G. Collins, M. D.

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*Brucella Infections in Animals and Man*: By I. Forest Huddleson. New York, The Commonwealth Fund, 1934. pp. 108. Price $2.25.

It is only natural that the evolution of undulant fever (*Brucellosis hominis*) as a disease should be accompanied by an increasing amount of literature indicating the widespread interest in the disease and the therapeutic emergency that has arisen since our approach to diagnosis has become more scientific and the disease more commonly found. This monograph condenses the information on the genus *Brucella*, methods of isolating and culturing the organism, serologic, allergic and immunologic methods of diagnosis and the pathology produced by these organisms in the more commonly infected animals. Such a monograph is important because it makes available the diagnostic information accumulated to date on undulant fever to the clinician whose time for study is limited by the every day necessity of applying what he already knows to the patients at hand.

W. H. Gillentine, M. D.

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*Applied Dietetics for Adults and Children in Health and Disease*: By Sanford Blum, A. B., M. S., M. D. Philadelphia, F. A. Davis Company, 1936. pp. 408. Price $4.75.

Blum's book consists essentially of lists of foods which are advised for consumption and foods which are to be avoided in various conditions encountered in the practice of medicine. The author has presented lists which are captioned so that the physician has merely to look up the index of the book, find the condition he is concerned with and then turn to an already prepared list of foods for his particular patient. The presentation is divided into two parts, the first including "Dietary for Adults in Health and Disease" and the second "Dietary for Infants and Children in Health and Disease". There is a general index and a food index. The diets are based on those the author employed "during a period of twenty years." There are no references made to the literature.

Each diet list is very generalized. The foods are rarely expressed quantitatively, and then only in general terms. Brief suggestions and discussions are made in regard to the diets and habits of eating. While the diets are generalized in many respects, they are quite specifically listed for rather specific types of patients and conditions. For instance, the author has a diet for "chronic indigestion in middle aged adults", "spare adult male—impaired digestion", "spinster with impaired digestion", "for frail young mother", "professional man", "frail woman school teacher" and many other diet lists specifically captioned. Blum uses a different diet for treating obesity in a "woman thirty-five years old" and a "two-hundred-and-sixty-pound female clerk". No logical reasons are presented to warrant such minute differentiation. In the diet for a normal adult, Blum advises one to avoid such foods as duck, stew, tongue, goose, kidney, lobster, crab, beets, sprouts, sauces, gravies and many other foods which make up the average normal individual's diet. If such commonly consumed foods are to be avoided the author should at least present reasons. Again, Blum advises a "professional man" suffering from malnutrition to drink a "glass of water with a teaspoonful of salts on arising". Why such a practice? The term "salts" is quite indefinite in itself.

The book contains a list of foods which leaves the reader wondering why any one of them is selected or eliminated. The diets as listed cannot be intelligently prescribed nor can they aid the physician in understanding his diet problems. Such a list of names of foods fosters the use of diets for placebo rather than therapeutic purposes. The book can be of little use to the medical profession.

G. E. Burch, M. D.

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*Modern Treatment and Formulary*: By Edward A. Mullen, P. D., M. D., F. A. C. S. Philadelphia, F. A. Davis and Company, 1936. pp. 707. Price $5.00.

This is a book small enough to go into a pocket, costing $5.00, containing nearly two thousand prescriptions, also brief and, in general, excellent short discussions of the treatment of common disorders and diseases arranged alphabetically. The above description sounds good, but, in the reviewer's opinion, the value of the book is largely destroyed by the lack of discrimination shown by the author in his choice of prescriptions. While many of these are excellent and of the type ordinarily prescribed, a too large number are worthless and some perhaps harmful.

The reviewer also disagrees most decidedly with certain statements, such as "in acute malaria quinine is the remedy of choice. In fact it is the best and only remedy". Granted that the value of atabrin is not yet finally established, a book published in 1936 should certainly refer to it. Should one holding a position as Assistant Professor of Pharmacology, as does the author, give his approval to prescribing for a patient with pneumonia six minims of tincture of digitalis with two and one half minims of tincture of belladonna four times a day? Or tincture of veratri viridis?

J. T. Halsey, M. D.

*Diseases of the Nails*: By V. Pardo-Castello, M. D. Springfield, Illinois, Charles C. Thomas, 1936. pp. 177. Price $3.50.

This concise treatise of the Diseases of the Nails is a request volume of 169 pages. Its existence follows a paper read before the Southern Medical Association at Richmond, Virginia.

Dr. Pardo-Castello received his medical training in American universities. He understands the difficulties of the treatment of the nails and has written an excellent text and with complete bibliography. The reproduction of photographs is well worth the price of the book.

M. T. Van Studdiford, M. D.

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# CHRONIC, BENIGN AND SMALL MALIGNANT ULCERATIVE LESIONS OF THE STOMACH: FACTORS HELPFUL IN THE DIFFERENTIAL DIAGNOSIS*

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ROCHESTER, MINN.

With the realization that only one of every four gastric carcinomas is resectable when first seen at the clinic, and that half of the patients who have the condition are rejected for operation on completion of the examination,[5] it is obvious that the diagnosis of malignant gastric lesions is usually not difficult. I shall therefore consider here only those small circumscribed carcinomatous lesions that are more or less indistinguishable from chronic benign ulcer. Probably with better understanding of the nature, incidence and significance of these circumscribed lesions, further progress will continue to be made, so that increasingly more patients will be seen at a time when the lesion is localized and resectable.

Progress has been made to the point at which it is recognized that gastric carcinomas may frequently exist in the absence of cachexia, a palpable epigastric mass, achlorhydria, pyloric obstruction and anemia, and in the absence of lactic acid, blood, and of the bacillus of Oppler and Boas in the gastric content.[9] The profession, moveover, is becoming increasingly cognizant of the fact that early carcinomatous lesions of the stomach, in fact even those of considerable extent, present no characteristic train of symptoms, and that those symptoms traditionally described in the textbooks are actually the manifestations of the advanced lesion.

Admitting in the state of present knowledge, especially in the absence of a specific biologic test for cancer, that the carcinomatous transformation of a gastric ulcer may not be discernible short of histologic examination and that all criteria may fail in the individual case, surely progress has been made in the recognition of small carcinomatous lesions. To assume that the problem is an insoluble one is a defeatist attitude, and to ignore, or to discount too freely, certain symptoms and signs or their variable combinations in the presence of a gastric lesion implies carelessness, inexperience or prejudice, and such an attitude may seal the doom of the patient.

### THE ORIGIN, OR PRECURSORS, OF GASTRIC CARCINOMA

Because of the important bearing of this aspect of the disease on diagnosis, prophylaxis and therapy, it seems appropriate to consider the origin, or the precursors, of cancer of the stomach. It is the universal conviction that cancer rarely if ever develops in normal, healthy gastric mucous membrane. For years there has been concrete evidence that cancer may arise in the borders of a chronic gastric ulcer and in adenomas and polyps, although the last mentioned are of relatively infrequent occurrence. Some pathologists, notably Konjetzny and his followers, have maintained for almost a quarter of a century that ulcers and carcinomas, particularly the latter, have their origin in chronic gastritis, or in adenomas and polyps which they regarded as usually being the result of gastritis. Konjetzny felt that ulcer as a cause of cancer was infrequent. About seven years ago Hurst advanced the plausible hypothesis that carcinoma may originate in all three lesions, carcinomas associated with the presence of free hydrochloric acid having had their origin in a pre-existing gastric ulcer, and those associated with achlorhydria having had their origin in a pre-existing chronic gastritis. In his opinion carcinomas originating in gastric ulcers constituted about 20 per cent of all carcinomas, those originating in chronic gastritis about 75 per cent, those in adenomas 4.5 per cent, and those in polyposis 0.5 per cent. Hurst contended that achlorhydria was not the result of carcinoma or of its extension but that it antedated the onset of cancer as a consequence of a pre-existing gastritis. This is a revolutionary theory, yet one consistent with certain clinical and pathologic observations. While we at the clinic are inclined to agree more with Hurst concerning the importance of ulceration as a precursor of carcinoma, our experience does not permit us to accept without many reservations his theory concerning chronic gastritis and achlorhydria in relation to such a large percentage of gastric carcinomas.

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*Read before the Louisiana State Medical Society, Lake Charles, Louisiana, April 27-29, 1936.

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### VARIETIES OF EARLY GASTRIC CARCINOMA

Early gastric carcinomas are characterized by small localized areas of infiltration or thickening of the gastric mucous membrane, by plaques, polypoid growths, and by ulceration. All but the last named variety are small tumefactions which consist of adenomatous, scirrhous or polypoid growths that have not undergone ulceration, and if so, to no appreciable extent. The last mentioned variety, which is the predominant form of early gastric carcinoma irrespective of size, consists of: (1) small malignant tumefactions undergoing gross or demonstrable ulceration and benign ulcers which have undoubtedly undergone more extensive malignant transformation which are designated as "ulcerating carcinomas;" and (2) chronic ulcers in the borders of which carcinomatous changes have taken place, designated as "carcinomatous ulcers."

From a roentgenologic standpoint Kirklin[8] classifies early carcinomas into four types: (1) small malignant or infiltrating growths without deep ulceration; (2) early prepyloric carcinomas; (3) small ulcerating carcinomas, and (4) malignant ulcers. The second is apparently an empirical classification, or one of convenience, because of the difficulty in distinguishing roentgenologically a lesion in this location from other lesions such as syphilis, hypertrophy of the pyloric muscle, hypertrophied rugae, and benign ulcer associated with regional spasm of the antral musculature.

While the small infiltrative or tumefactive lesions come in for some consideration, I shall confine my discussion chiefly to small ulcerating carcinomatous lesions and indicate in what way they may be distinguished from the commoner benign gastric ulcers.

### DIFFERENTIAL DIAGNOSIS

I shall first discuss those noteworthy signs and symptoms which to date my colleagues and I[9] have found helpful, or even decisive, in distinguishing between benign and carcinomatous ulcerating lesions. Our observations are based on the clinical, roentgenologic, and pathologic study of successive series of resected and histologically verified benign, and small malignant specimens.

In view of the routine methods of diagnostic procedure it seems logical to consider at the outset the significant features elicited by the anamnesis, physical examination and gastric analysis; however, I shall first discuss the data afforded by the roentgenologic examination as these usually supply, among other important details, the fundamentally essential information concerning the situation of the lesion, whether gastric or duodenal, and the approximate extent of the same.

*Significance of Roentgenologic Findings.*—Of first concern is the size of the crater, so faithfully depicted by the niche. I have previously shown that one in about four resectable carcinomas are within the range of size of benign ulcers.[4] This observation has recently been verified by Comfort and Butsch in a study of 135 carcinomas, within the range of size of ulcers, and 513 benign ulcers, resected at the clinic during a period of five years. Thus we have the reassuring fact that on the basis of incidence alone, a resectable lesion has approximately four chances out of five of being benign before any other data have been accumulated. However, on the basis of the ob-

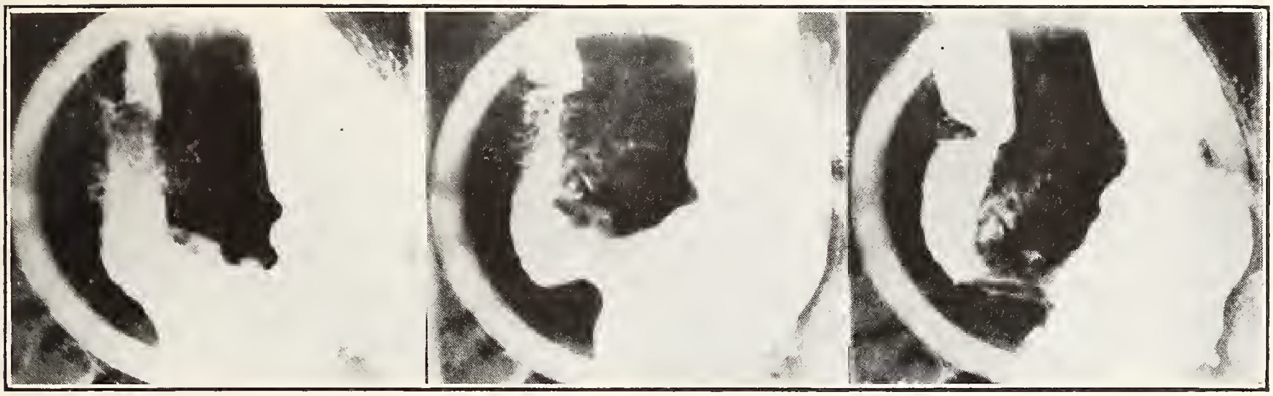
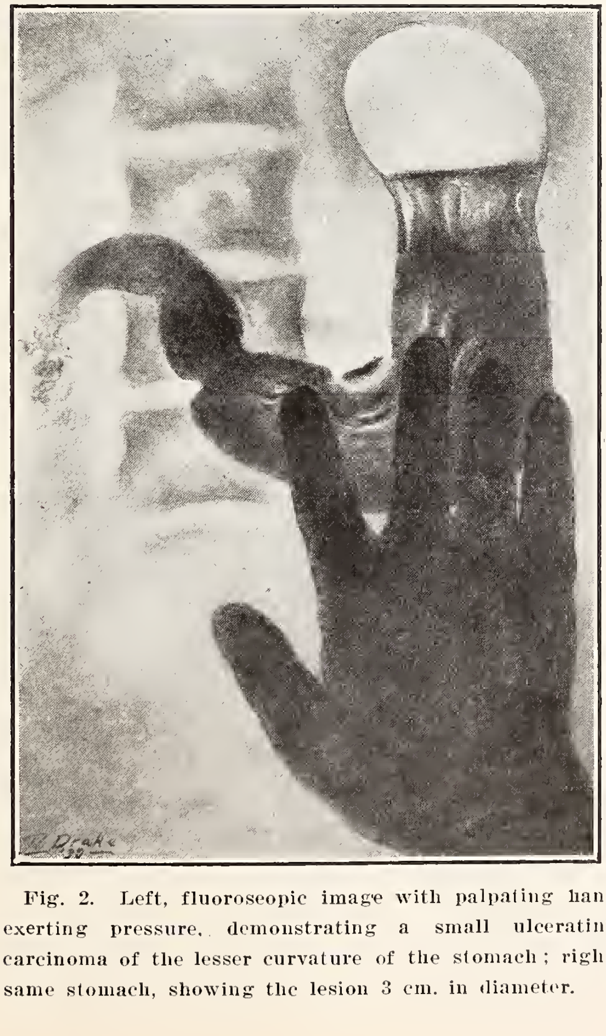


Fig. 1. Small ulcerating carcinoma, not more than 2 cm. in diameter, on lesser curvature of stomach below incisura angularis: A married woman, aged 66 years, about 8 weeks prior to admission had cramp-like pains about five hours after each meal and at about 5 a. m.; partial relief was obtained from alkalies, milk, and hot moist applications. There was no nausea, vomiting, loss of weight or impairment of appetite. Restriction of diet to milk and cream brought marked relief; no epigastric tenderness or tumefaction. Hemoglobin 86 per cent; free hydrochloric acid 32 clinical units. Operation (April 8, 1936); grade 3 ulcerated carcinoma (2 by 1.5 by 1 cm.).

servations of Alvarez and MacCarty, the roentgenologist considers any lesion with a niche more than 3 cm. in diameter as, in all probability, being carcinomatous although there are frequent exceptions to the rule, as pointed out by various writers including myself. Unfortunately, however, the presence of a small niche does not exclude carcinoma, for in the past fourteen years, according to MacCarty, 6 per cent of all carcinomas resected have been found in chronic ulcers less than 2.5 cm. in diameter. This observation is of interest inasmuch as 5 per cent of lesions unequivocally diagnosed in recent years as benign ulcer by our roentgenologists were actually carcinomatous according to data compiled by Comfort and Butsch. By way of comparison, the average diameter of all gastric cancers resected at the clinic is 6.1 cm. That the roentgenologist, in the interest of the patient's welfare, "leans over backward" to regard any irregularity of a lesion as indicating its actual or probable malignant nature, is evidenced by the latest statis-



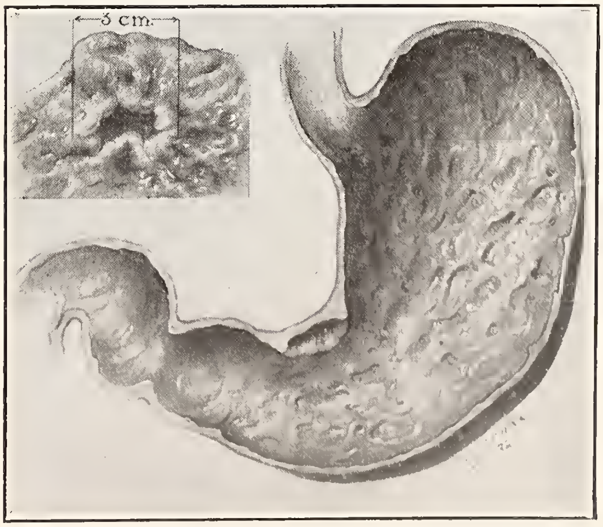


Fig. 2. Left, fluoroscopic image with palpating hand exerting pressure, demonstrating a small ulcerating carcinoma of the lesser curvature of the stomach; right, same stomach, showing the lesion 3 cm. in diameter.

tical study indicating that in 26 per cent of cases so regarded the lesions were actually benign. In other words, the odds favor a pathologic diagnosis of carcinoma three to one if the roentgenologic diagnosis is carcinoma.

Other roentgenologic features characteristic of most benign or carcinomatous lesions are summarized in table 1. Undoubtedly the greatest progress has been made in the detection of small ulcerating carcinomas on the basis of the meniscus sign-complex. This sign, according to Kirklin,[7] is practically pathognomonic of carcinoma (figs. 1 and 2). In my judgment the roentgenologic examination, when carried out by a well-trained and experienced roentgenologist, is the most valuable single diagnostic agent.

*Gastroscopy.*—Schindler claims that gastroscopy is of great value for the differentiation of benign and malignant lesions, stating that "the latter do not have the sharp edge and the yellow floor of the benign ulcer." He must have had reference to the more advanced malignant lesions because the small or early type of lesion under consideration usually cannot be distinguished from chronic ulcer by the surgeon or pathologist, even on close inspection of the resected specimen. It is only by histologic examination that successful differential diagnosis is possible.

*Significance of Symptoms.*—Contrary to the opinion of some observers, the majority of benign gastric ulcers are accompanied by the classic syndrome of ulcer, although not to the same degree or with the same frequency that characterizes duodenal ulcer. The longer the history, the greater is the chance (seven times) that the lesion is benign, especially when the symptoms have been present for from ten to twenty-five years (fig. 3). It was readily apparent, however, that the signs and symptoms, and their duration, which characterize "run of the mill" carcinomas are much less in evidence when dealing with the early or small malignant ulcerative lesions. In a critical study ten years ago of the histories of eighty patients who had undergone gastric resection for small malignant lesions (carcinomatous ulcers and ulcerating carcinomas), I noted that 52 per cent of them presented symptoms characteristic of benign ulcer, with an average duration of such symptoms of eleven years; moreover, 82 per cent of these had free hydrochloric acid in the gastric content. Subsequent study of a larger series indicated that at least three-fourths of the ulcerating carcinomas have their origin in a gastric ulcer, if the syndrome and the presence of hydrochloric acid are any criteria. While a typical history of ulcer favors benign ulcer it does not exclude malignancy; contrariwise, an irregular or nonulcer type of history does not exclude benignancy. Neither is a change in symptoms any criterion of malignant transformation, and one would not expect it to be when such transformation is of a microscopic or even slightly gross nature. Such change in symptoms is usually due to some complicating factor, such as obstruction, penetration, perforation, perigastric adhesions, hourglass stomach, and so forth (fig. 4). Thus it is seen that the symptoms themselves are only of secondary value in the differential diagnosis, although they are frequently of importance when taken in conjunction with other findings.

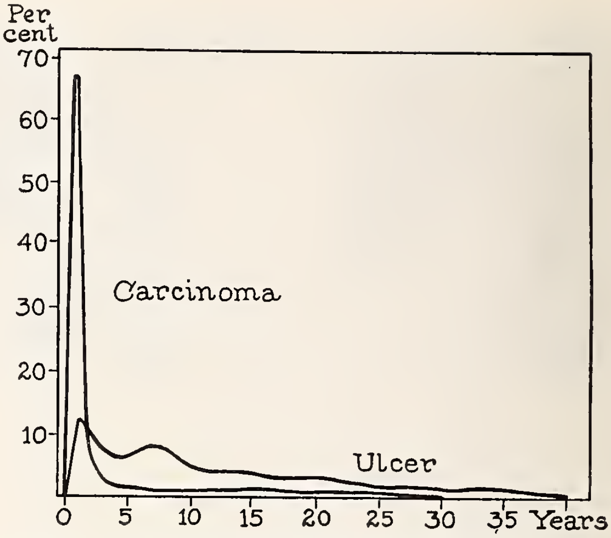


Fig. 3. Percentage distributions, showing the marked difference in the duration of symptoms of patients who have ulcer, and of patients who have cancer, of the stomach.

*Significance of Sex, Age, and Time of Onset.*—Our studies have shown that sex does not aid materially in determining whether the lesion is benign or malignant. The difference in the average age of patients with small carcinomas (52.9 years) and with ulcers (48.5 years) was too small to be of any value. Com-

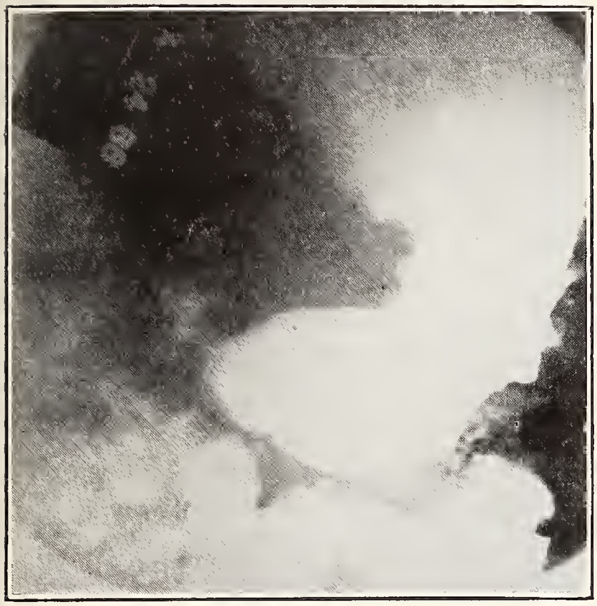


Fig. 4. Perforated ulcer on posterior wall of stomach near lesser curvature above incisura angularis: A man, aged 42 years, entered clinic April 23, 1936. In 1932, following emotional stress and irregular habits, he experienced severe pyrosis two hours after eating, which was relieved by food; he had nausea and apparent melena. He recovered after three months on a diet-alkali regimen. He had a recurrence in February, 1936. Roentgenoscopic examination disclosed gastric ulcer. He was treated with 24 injections of histidine preparation and became free of symptoms after one month. There was no roentgenologic evidence of ulcer in March, 1936. One month later he began to have diffuse gnawing upper and midabdominal distress, bearing no relation to alimentation; this was associated with belching but there was no pyrosis and food gave no relief as heretofore. His home physician was suspicious of carcinoma; there was localized tenderness in the midepigastric area. Hemoglobin, 98 per cent; free hydrochloric acid (Ewald), 42 units; glycosuria. Operation: chronic ulcer (2 by 1.5 cm.) which had perforated into capsule of pancreas. Gastric resection.

fort and Butsch, however, found that, although the incidence of ulcer was greater than cancer in all decades, ulcer was twenty times more prevalent than cancer in the third decade of life. By and large, advanced age and short duration of symptoms characterize many cases of carcinoma of all types and sizes; however, inasmuch as many pathologically verified benign gastric ulcers first presented symptoms when the patients were in middle life, on an average of nine years later than duodenal ulcer, the factor of age and time of onset per se is of somewhat limited differential diagnostic value. I[4] have also previously shown that 8 per cent of patients with cancer are less than forty years of age, and actuaries, notably Dublin, Jimenis and Marks, have recently stated that: "while it is true that the mortality from cancer of the stomach increases definitely with age, a surprisingly large number of cases have their onset of malignancy in the thirties."

*Significance of Gastric Analysis.*—Generally speaking the extremes of gastric acidity, that is the absence of hydrocholoric acid or marked subacidity on one hand and high acid concentration (hyperacidity) on the other, are of relative value in distinguishing benign from malignant lesions. The mean values are of less significance. In recent years some authorities have also stressed the importance of secretory volume, and with considerable justification. Some allowance must be made for sex and age, as secretory function varies both in health and disease under these circumstances. I would be reluctant to look upon a lesion as benign, however small, in the presence of consistent achlorhydria, especially after stimulation with histamine, even though one occasionally sees instances of active, latent, or healed benign gastric ulcer, or recurrent or anastomotic ulcers, in the presence of achlorhydria. My experience would direct me first to exclude carcinoma, and then, in order of frequency, syphilis, tuberculosis and patchy gastritis. On the other hand, a concentration of hydrochloric acid of 60 or more clinical units after an ordinary Ewald meal as a stimulus would make the diagnosis of carcinoma unlikely. I have already pointed out the high incidence of free hydrochloric acid in three-fourths of the cases of small carcinomatous lesions, strongly suggesting that such lesions have their origin in pre-existing benign ulcers, when one takes into consideration the nature of the symptoms and duration of the complaint. For inoperable lesions or those of large size the reverse is true inasmuch as achlorhydria or hypochlorhydria is the rule and the characteristic symptoms of ulcer are infrequent.

There are apparently two varieties of small carcinomas: carcinomatous ulcers, which are invariably associated with adequate amounts of acid and secretion, and ulcerating carcinomas, which may or may not be associated with free hydrochloric acid. Figure 5 is illustrative of the latter and depicts a small lesion which was associated with the presence of achlorhydria

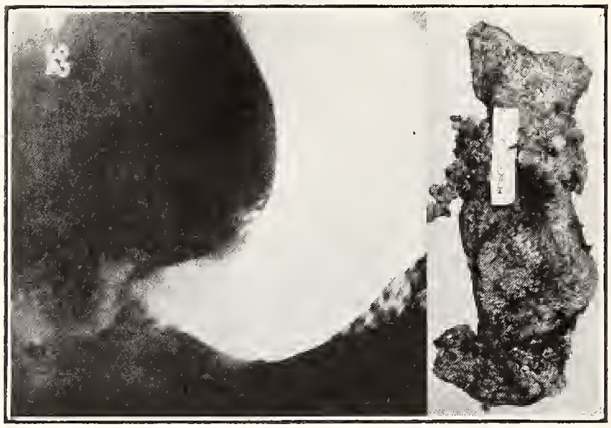


Fig. 5. Meniscus sign-complex (not shown on film) of small ulcerating carcinoma on posterior wall, lesser curvature, below angle: The patient's (a man, aged 73 years) symptoms began four months previously; he lost 17 pounds (7.7 kg.). Hemoglobin, 90 per cent; achlorhydria (fractional meal). Pathologic report on tissue removed; adenocarcinoma, grade 2 (2.5 by 2 cm. by 7 mm.).

even in the earliest stage of the disease. The lesion in this instance undoubtedly is representative of an adenocarcinoma which has ulcerated and which is associated with chronic antral or pan-gastritis, or it might have had its origin in such a process. According to our most recent studies, the recovery of a gastric content greater than 200 c. c. was five times as frequent in cases of ulcer as in those of cancer. It was, however, more an indication of the low site of the lesion (juxtapyloric) rather than that cancer or ulcer was present. Remnants of food in the gastric content were approximately the same in both instances. The presence of occult blood did not favor either lesion. In my judgment the combination of achlorhydria and pyloric obstruction, or gross retention, is highly characteristic of carcinoma. When the roentgenologic examination, which is usually made independent of the clinical examination, results in a diagnosis of duodenal ulcer with obstruction (or of a lesion at the outlet with obstruction, a diagnosis which implies the absence of a demonstrable filling defect), the clinician should regard the lesion as malignant until it is histologically proved otherwise. The condition in the majority of such cases, in my experience, is due to a small obstructing carcinoma at or just above the pylorus.

*Significance of the Results of Treatment.*—Regardless of opinions to the contrary, the results of properly carried out medical treatment and observation are only less decisive in differentiating a benign from a circumscribed malignant process than surgical removal and histologic examination of the excised lesion. I say this with full cognizance of the fact that some chronically sclerosed, indurated or chronically perforated lesions will not heal, so that there is a persistence of the niche in whole or in part, and that on the other hand some ulcers with early carcinomatous changes in the borders may temporarily disappear under treatment. As a matter of fact, however, I have never seen complete disappearance of all symptoms and signs when a lesion was malignant. In some cases the signs may disappear but the symptoms may persist, in whole or in part; or, what is more frequently the case, the symptoms may temporarily disappear but the signs may persist or become more evident.

Proper medical treatment presupposes thoroughness and repeated obesrvation, roentgenologic and otherwise, at intervals of two to three months for the first year. Small ulcerating carcinomas usually change little in appearance; in fact they may get larger during treatment; or, if the crater is reduced, the symptoms or other signs, especially occult bleeding, or both, may persist or increase. The apparently benign ulcers which are intractable to treatment should be submitted to operation, not only in the best ultimate interests of the patient, but in order to determine the true nature of the lesion. Haphazard or negligent treatment of any gastric lesion is unpardonable, and if adequate treatment is not possible or acceptable, operation should be advised unless the surgical risk, in the opinion of the physician, is much greater than the hazard of harboring the disease, which is unfortunately too often the case.

## COMMENT

Much that I have stated in the foregoing paragraphs may appear contradictory because there are so many exceptions to the rules. Nevertheless, a careful summation and appraisal of all the facts in a given case may aid in, or make possible, the differentiation of a carcinomatous ulcerative process and a benign one. In table 2 are listed the more significant symptoms and signs useful in such differentiation. This article will have served a useful purpose if only the physicians will not regard lightly any gastric lesion, however small, and will take added precautions under the circumstances which I have described in order that the health and life of his patient will be properly safeguarded.

Table 1

ROENTGENOLOGIC CRITERIA FOR DISTINGUISHING BETWEEN BENIGN AND MALIGNANT ULCER

BENIGN ULCER

Niche usually less than 2 cm. in diameter

Niche regularly hemispherical, dense, and margins sharply defined

Ulcer on lesser curvature, not near pylorus

Gastric peristalsis likely to be active

Spastic manifestations common: narrowing, curling of antrum, hourglass contraction

Rugae commonly accentuated and converge toward niche

Pylorus spastic

Localized tenderness over ulcer

MALIGNANT ULCER

A niche exceeding 2.5 cm. in diameter strongly suggests malignancy

Niche often conical or irregular, faint, and margins poorly defined

Ulcer on greater curvature invariably malignant; ulcer on posterior wall likely to be malignant; ulcer near pylorus open to suspicion

Gastric peristalsis often diminished or absent

Spastic manifestations rare

Rugae adjacent to niche often faintly marked or effaced

Pylorus gaping

Ulcer seldom tender to pressure

Table 2

DIFFERENTIAL DIAGNOSTIC FEATURES OF CARCINOMATOUS AND BENIGN GASTRIC ULCER

| Symptoms and Signs | Favors malignancy | Favors benignancy | Degree (basis of 1 to 4) |
|---|---|---|---|
| Long duration of symptoms (10 years or more) | | + | 3 |
| Age, 30 years or less, and free HCl, 40 units or more | | + | 3+ |
| Late onset and elderly patient | + | | 2+ |
| Irregular syndrome | + | | 2 |
| Achlorhydria and obstruction | + | | 3+ |
| Meniscus sign-complex | + | | 4 |
| Large niche | + | | 3 |
| Irregular outline of niche | + | | 3 |
| Location: prepyloric, greater curvature, posterior wall | + | | 2+ |
| Local tenderness (on roentgenologic examination) | | + | 3 |
| Incomplete results of treatment | + | | 2+ |
| Hourglass (B) type of stomach | | + | 3 |

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## DISCUSSION

Dr. M. D. Hargrove (Shreveport): We are all indebted to Dr. Eusterman for this excellent presentation in reference to carcinoma of the stomach. There is one point with which we ought to be particularly impressed. That is if the patient comes to us with a digestive disturbance that might be ulcer or cancer, let us not allow that individual to get away without having tried our very best definitely to place the lesion in one class or the other, remembering that carcinoma is so very frequent in the stomach. The reason most of these patients get to the surgeon when they are inoperable is because we do not place enough importance on their initial symptoms and we do not impress upon the patient that they should come back and find out if they have an organic lesion of the stomach or not.

Dr. Donovan C. Browne (New Orleans): Needless to say, I have enjoyed Dr. Eusterman's presentation very much. Those interested in gastroenterologic problems cannot help being impressed by the fact that in such careful observations and statistical studies lies the solution to the perplexing question of when to subject these cases to surgery. What is needed most now are just such criteria for surgical intervention and medical management. Many of his cases would seem a direct indictment of the radiologist since the criteria lay stress on size of the lesion and technic of examining, and though it may be true that roentgenology has had much to do with advancing the speciality of gastro-enterology, we must not be content to shift the responsibility too largely to the roentgenologist. We are the ones who see these cases first and I am afraid are negligent in following them through, thus losing our opportunity to add to the meager store of knowledge along this line.

An important feature was the fact that 8 per cent (if I remember correctly) of these selected cases showing malignancy occurred in individuals under 35 years of age. We cannot, therefore, safely judge the lesions on an age basis. Again it is noted the former criteria of size has its noable exception and lesions only a centimeter in diameter were definitely malignant. So if we hope to advance clinically in our management of gastric lesions the diagnostic criteria have to be improved and this may be accomplished best by such studies as Dr. Eusterman has presented.

Dr. Allan Eustis (New Orleans): I would like to ask Dr. Eusterman when he speaks of "inoperable" what is the criterion in the Mayo Clinic? I have seen many different surgeons find cancer that could not be removed, and the wound was closed without any attempt to provide drainage of the stomach. I recall one case Dr. Stone and I had where it was not possible to remove the carcinoma; it was limited to the pylorus but the lymphatics were involved. A gastro-jejunostomy was done. The man weighed 87 pounds at operation and there was no doubt as to carcinoma of the stomach. He gained 60 pounds in weight, and lived three years in perfect comfort until he died of carcinomatosis. I want to urge the surgeon to do gastro-enterostomies, because, if you make an opening the patient will be relieved of pain, and he may have considerable relief for several years.

Dr. George B. Eusterman (In conclusion): I want to thank Doctors Browne, Hargrove and Eustis for their kind discussion. Doctor Browne's observation that the small size of the lesion does not exclude malignancy is a pertinent one. The criteria which we used to consider pathognomonic for benign lesions are often unreliable.

Doctor Hargrove made an important observation so far as the practitioner is concerned. He is, so to speak, in the front line trenches and sees these patients first, often at a time when marked palliation, or cure, is still possible. The various reasons why 17 per cent of patients with gastric cancer are doomed at the time they arrive at the Clinic are more or less familiar. The first reason is procrastination, the second, errors of omission and commission on the part of the attending physician, and the third is characteristics inherent in the lesion itself which spell inoperability by the time the patient is first seen. These characteristics are: the high site of the lesion, which makes it irremovable even if diagnosed early, and the fact that the condition may be well advanced when symptoms first obtain. Any symptoms or signs that raise a healthy suspicion of the possibility of malignancy should indicate a complete examination, if nothing more than an x-ray examination by a competent roentgenologist.

Doctor Eustis asked a very pertinent question: "What constitutes inoperability?" This often can be determined by the results of x-ray and physical examination. The former, in large measure, determines the location and extent, and the latter whether or not metastases to other organs have already taken place. The cases cited by Doctor Eustis, with apparent extensive carcinoma and pyloric obstruction who recover after gastroenterostomy are actually cases of chronic perforated benign inflammatory lesions mistaken for carcinoma. In the old days we frequently had similar experiences, and it sometimes proved embarrassing to see the patient alive ten or twelve years later when his relatives had been told that he would not survive the operation for more than a few months.

The important thing to remember is that carcinoma of the stomach is largely a disease of middle life and when patients present themselves with gastric symptoms of short duration in the fourth to the sixth decades, carcinoma should be excluded by all available methods.

# THE JUSTIFICATION FOR EXPLORATORY LAPAROTOMY IN THE ABSENCE OF A DEFINITE DIAGNOSIS*

URBAN MAES, M. D.
with
ELIZABETH M. McFETRIDGE, M. A.
NEW ORLEANS

Within the last year I have heard two equally distinguished surgeons make two diametrically opposite remarks about exploratory laparotomy in the absence of a definite diagnosis. One of them said that as he grew older he was more and more disinclined to open the abdomen without a fairly clearcut idea of what he was likely to find within it. The other said that as he grew older he found himself more and more often in situations in which he felt that his patients' best interests were served, in which, indeed, their lives were saved by his prompt resort to operation after he had eliminated possible medical states. That diversity of opinion represents rather fairly the two schools of thought in the matter of abdominal exploration. On the one hand are the conservative surgeons who refuse to operate except on a definite diagnosis and for whom, ordinarily, there would be only praise. On the other hand is the group composed in part of surgical enthusiasts whose resort to the knife is always immediate and in part of ordinarily conservative surgeons, ordinarily slow with the knife, who believe that under certain circumstances the wages of delay is death.

This is no abstract discussion nor can any definite set of rules be formulated to set one's feet on the way. Every problem that arises must be settled on its individual merits. But because rules cannot be made it does not follow that principles cannot be established, and it is those principles I propose to discuss with you, briefly and in the most general fashion.

The late Lord Moynihan hit the nail squarely on the head, as he so often hit it, when he once said in a discussion of this subject, "The salvation of human life is a greater thing than a convincing, irrefutable clinical diagnosis." Arthur Curtis meant the same thing when he said in another connection, "It is better to have a less accurate diagnosis and a more favorable prognosis." And the late John B. Deaver, as was his custom, said it even more bluntly and forthrightly: "A hair-splitting diagnosis rarely gets the patient anywhere except to the grave."

I am not so sure that all the scorn which has been heaped upon so-called "unnecessary" emergency operations is altogether justified. I wonder whether surgeons who pride themselves upon their conservatism have not been inclined, in their anxiety not to resort too quickly to the knife, to take the opposite position and refrain from it rather too long. They have insisted upon a definiteness of diagnosis that many times can be achieved only at the point of death, if not actually on the autopsy table. Eliason, in a recent discussion of the surgeon's aims, stated them in the proper sequence, and they are not always so stated or so conceived. Those aims are three-fold, he says. The surgeon must determine, first, whether the symptoms are caused by a medical or a surgical state. He must determine, second, whether the condition is one which demands emergency measures. He must determine, third, if that is possible, what the exact diagnosis is. That is the order in which the surgeon should always proceed. If the first two points can be definitely established, the third, from his standpoint and from the patient's, is infinitely less important.

To quote Lord Moynihan again, "exploration for the purposes of surgical inquiry has scarcely any mortality today." But that is no justification for the reckless use of this means of diagnosis. Only when the employment of simpler measures means the loss of time which for the patient's sake cannot be lost should the discussion of diagnosis cease and the discussion of exploration without diagnosis begin. Surgery always implies trauma. A desperately ill patient, sick with a surgical disease for which only surgery is the remedy, must take his chance with the trauma of operation. A desperately ill patient, sick with a medical state which cannot be clearly differentiated from a surgical state, must also take that risk, though never without a clear realization of the possible consequences, never until all measures that obviate the risk have been conscientiously employed. Every surgeon of experience has seen the mimicry of surgical disease by purely medical states, and many times the differentiation is absolutely impossible. When that situation arises, the patient's chance is better with exploration than without it. In spite of possible dangers and complications more lives have been lost by withholding operation under such circumstances than by employing it.

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Another point which is not emphasized as it should be is this, that the mortality which attends exploratory laparotomy is nothing like the mortality which attends the medical treatment of surgical conditions. Statistics for comparative purposes may not be exact, but of the fact there can be no doubt. During the last six years we have analyzed a series of 2715 surgical cases of acute appendicitis in the New Orleans Charity Hospital, in which there occurred 157 deaths, a mortality of 5.8 per cent. Sixteen of those deaths occurred because the patients had been treated outside of the hospital by physicians who delayed advising surgery until they were certain the disease was appendicitis; in 12 cases, we might add, purgation had been added to the crime of delay. During the same period 49 patients died of acute appendicitis without operation. In seven of these cases admission to the hospital was delayed until the physician who had been called in was certain the disease was appendicitis. Surely such deaths should be laid squarely at the door of the delay caused by an endeavor to establish a definite diagnosis before operation.

The differentiation between medical and surgical conditions is by no means as simple as it sounds. Finney, in a recent paper on acute abdominal disease, lists forty conditions which at various times in his experience he has been called upon to differentiate from acute appendicitis. One of the leading textbooks of surgery lists sixty possible medical and surgical diseases which are likely to be confused with acute appendicitis. Comroe, in a paper on the medical causes of abdominal pain, lists nine main groups and twenty-seven subgroups which must be differentiated. Bearwood has reported 114 casually collected cases of diabetes in which the abdominal syndrome was pronounced, as well as a most instructive series of 14 acute surgical diseases which occurred among 1,000 consecutive diabetic patients. Wechsler has pointed out the possibility of acute or subacute abdominal symptoms in certain lesions of the brain. Finney, Jr., and Mohr have reported a series of cases of coronary occlusion simulating acute abdominal disease, a mimicry which furnishes, they say, "as nice a problem in differential diagnosis and for the exercise of sound judgment as may ever face any of us." The possibilities of error in either direction are endless. I do not remember who it was who pointed out that the true derivation of abdomen is from a root which means to conceal, but it was a sound observation, just as sound as Osler's warning that the abdominal wall interposes an insuperable obstacle to accuracy of diagnosis.

The differentiation among the multitude of possible surgical diseases introduces a host of fresh problems. The condition which confronts one is more likely than not, merely as a matter of probability, to be one of the more common surgical states. Deaver lists acute abdominal conditions in the order of intensity, with acute pancreatitis first and acute appendicitis last. But in the order of frequency, he very correctly says, the last shall be first and appendicitis must be thought of first, last and all the time. So far, so good. But rare as well as common diseases must be considered, for they may be present. The frequency of the unusual is a paradox we might all of us bear in mind, remembering Moynihan's remark that infrequency of incidence is very often just another way of saying inaccuracy of observation. I was surprised, in 309 autopsies recently studied on our service from the clinical aspect, to note the large number of supposedly infrequent and actually rare conditions included in this material which covered a single year. There were, among other things, two cases of carcinoma of the bile ducts, four of carcinoma of the gallbladder, four of carcinoma of the liver, and one of melanosarcoma of the rectum. Less than 100 cases of some of those conditions are on record in the literature, and the finding of so many cases of such supposedly uncommon conditions within so short a period proves my point that rare diseases must be considered as well as common ones in the attempted diagnosis of acute abdominal conditions.

Another point must be considered in this connection. Merely to determine that the condition is surgical is not enough. One must determine whether it is immediately surgical. Acute cholecystitis is a case in point. I am not yet numbered among those who believe it constitutes a surgical emergency, though I grant the excellent results of some of those who do. My own experience is against that point of view, and so are the statistics collected recently from Charity Hospital by Boyce, Veal and McFetridge, on my own service. On the other hand, without opening the abdomen to see what is there, it is sometimes impossible to determine that waiting is safe, it is sometimes impossible to differentiate an acute attack of gallstone colic from acute pancreatitis, let us say, or from rupture or gangrene of the gallbladder. Ever since I operated for what I thought was a ruptured ovarian cyst and found a ruptured gallbladder in the pelvis I have felt somewhat uncertain of my diagnostic ability along those lines.

To take another illustration, it is equally difficult to determine in certain cases of acute appendicitis when operation is urgent or when it may safely be delayed. In most cases the decision is clearcut. One operates immediately or one operates in the interval. But in a small number of cases the decision is hedged about with uncertainties and the wrong course may mean death, as it did in 19 surgical and 27 nonsurgical cases in the series of cases of acute appendicitis we studied at Charity Hospital. Recently within 10 days on our own service we performed emergency appendectomies on three patients who exhibited exactly the same clinical syndrome, exactly the same abdominal findings. One of them had a normal appendix with an acute mesenteric lymphadenitis; operation did no harm but it was not necessary. The second patient had a gangrenous appendix with a small rupture; operation undoubtedly saved his life. The third patient revealed an appendiceal abscess to which neither the history nor the physical examination furnished the slightest clue. Too early operation may have caused his death, which occurred from paralytic ileus four days later; I do not know. I do know, however, that more patients who present his symptoms and who give, as he did, the story of a purgative, would be lost if operation were deferred than would be saved by refraining from it in the pious hope that localization might occur.

Let us consider other difficulties of diagnosis. Take the time element. A patient with acute appendicitis seen four hours after the onset presents a very different picture from the patient seen four days later. At that stage perhaps delay will be safe, for localization may have occurred, though the classical signs may be absent, as is clearly proved by the last case we have just quoted. But at that stage can one be really sure that the condition is a localizing appendicitis? We have case after case we have collected in our own studies in which operation was delayed on the basis of a story of appendicitis and the hope of localization, and postmortem proved the condition to be something else, often proved it to be a condition for which only surgery was the remedy. In 39 of 270 cases of acute appendicitis over 40 years of age, for instance, at which period of life, as we have repeatedly pointed out, the disease is notoriously treacherous and notoriously serious, the diagnosis was incorrect. Most of the incorrect diagnoses, fortunately, were surgical and immediate operation was done, but 13 patients lost their lives because surgery was delayed.

This brings us to another consideration, that further confusion arises when one is dealing with children and older persons. In children the history must be secured from observers who are either careless or too closely related to have the detached point of view necessary, and physical examination is always difficult. That difficulty is rather generally realized. But it is not so generally realized about older persons, and it is exceedingly important. With many old persons senility is a factor, their faculties are failing, and an adequate history cannot be obtained. Their lessened sensibilities cause a late and less keen realization of pain, so that the handicap of delay is practically always present. Their abdominal walls are sometimes obese, sometimes atrophied, and rigidity tends to be slight or absent and distention outstanding, regardless of the disease and its usual manifestations. All of them tolerate infection and toxemia badly, just as children tolerate them badly. In older persons abnormalities of blood chemistry due to organic disease may still further cloud the picture. I have seen operation withheld in intestinal obstruction because the diagnosis of uremia was made, and I have seen operation done in uremia with the first error in mind, and I have no blame for the surgeon in either instance. Only last week we had for our clinico-pathologic conference an autopsy on a man 82 years of age who died of intestinal obstruction and who never throughout his illness and up to the hour of his death admitted that he felt very badly. He illustrates perfectly the sluggish reaction exhibited by so many aged persons to serious and lethal disease. My own policy is to resort to exploration in children and adults advanced in years far more quickly than in the middle years, for I have come to realize that in those two age groups the proportion of doubtful cases is larger than it is at any other time.

Certain physical difficulties should be emphasized. An obese abdominal wall is always difficult to palpate, though a wise surgeon does not do surgery on obese patients if any other course is open. A hypersensitive patient reacts to pain as a more stolid one does not. Edema and inflammation introduce other complications. There are endless variations in the position of the abdominal viscera and in their relationship to each other. I view with considerable uneasiness the tendency I have noted in many recent texts to correlate the clinical manifestations of acute appendicitis with the anatomic position of the organ. That variations in position many times explain variations in course I have no doubt, but I question the wisdom of trying to determine the pathology present by hard and fast rules which are founded, at that, largely on conjecture. I have seen such speculations come to naught too many times to have a great deal of faith in them.

The presence of rigidity, which is properly considered a matter of great importance, is influenced by many extraneous factors, some of which we have already considered. If it is definitely localized it is almost conclusive proof of the involvement of the underlying viscus, which is not necessarily the viscus one thinks it is, but its absence is not always indicative of the absence of local disease. The involved organ may be displaced or may lie deep in the pelvis or in contact with the nondemonstrative area of the parietes. Cope has pointed out that fatigue of the reflex is a physiologic phenomenon which is inevitable when a state of contraction has lasted beyond a certain length of time, just as it is inevitable when a marked toxemia has dulled the reflexes. Stiffness and voluntary rigidity, too, must be distinguished from the involuntary rigidity which is a true part of the disease.

It must not be forgotten that there is nothing to prevent a patient with one disease from developing another. A patient under treatment for peptic ulcer can develop acute appendicitis; I have seen it happen. A patient with pulmonary tuberculosis can exhibit a ruptured intestinal ulcer; I saw that demonstrated at autopsy. The patient who is subject to repeated attacks of gallstone colic may develop acute pancreatitis and there is grave danger of that highly fatal disease being mistaken for the chronic condition for which hitherto medical relief has been sufficient. Any pre-existing medical disease is likely to be aggravated by the development of an acute abdominal condition and may overshadow the more urgent surgical state. A neurasthenic patient may have cried wolf so many times that a really acute condition may be overlooked. I heard of such a narrow escape recently. A woman of 70 developed a gangrenous appendix, in which rigidity was almost entirely absent, as it frequently is at that age, and which was overlooked for 24 hours by her family and her physician because they classified her complaint of abdominal pain as one of her usual lamentations.

I know of no general statements which can be safely made about the pulse rate or the degree of temperature in the diagnosis of acute abdominal disease. I know of no laboratory measures which are diagnostic. I know of no symptoms and no signs which can be relied upon. I know of no measures, in short, by which one can determine in all cases when a disease is surgical and when it is not, when surgery may be safely delayed and when surgery is urgent. And in a small group of cases, when I have exhausted such measures as come within the scope of my knowledge and experience, I resort to exploratory laparotomy without further delay, and I make no apologies for my course.

Morphia is so generally considered as clouding the diagnosis in acute abdominal conditions that I think it well to mention at this point the surprising proposition recently laid before the Staff of the Mayo Clinic by A. A. Zierold, that it should be used as a diagnostic measure. Abdominal muscle spasm, he points out, is twofold in origin, one component being a local spinal reflex, the other a widespread protective response to cortical stimulation. If the reflex due to cortical stimulation could be eliminated, as it has been proved that it can be by morphine, then, according to Zierold, whatever spasm remained would be that of an aggravated spinal reflex and would serve to identify the segment affected or even the site of irritation. He used the method in 150 cases with an error of 16, 10.3 per cent. With this error he is well pleased, remarking that it is no higher than what he calls "observational error." There were four errors in 44 cases of acute appendicitis, four in five cases of gunshot wounds, and six in ten cases of acute intestinal obstruction. The method, he admits, is therefore unsatisfactory and inadequate in gunshot wounds and intestinal obstruction, and the most satisfying results are in normal cases, in which it was correct in 100 per cent. The latter observation we consider irrelevant, as the diagnosis of normal cases is not usually a matter of the smallest importance. We doubt that in acute appendicitis or intestinal obstruction or gunshot wounds the percentage of error by other methods would be anything like as high. And we do not see, finally, how intestinal obstruction, in which the method is admittedly unsatisfactory, can be eliminated from the differential diagnosis. Even with the safeguards its author proposes, the method seems to us an unnecessarily dangerous one, and we mention it merely to condemn it. To us, observation is simpler and safer.

While I have spoken chiefly of acute abdominal conditions, in which the problem of exploration is most likely to arise, the difficulty is by no means limtied to them. I am thinking of carcinoma of the stomach, a disease for which as the years go by I have achieved an increasing fear and respect. There are two types of cases in which exploration is indicated in the absence of a definite diagnosis. One group comprises middle-aged persons with no very clear symptom complex. They are tired and anemic, they have lost weight and strength, their chief complaint is malaise, they do not want their food, they prefer not to eat it, they are constipated when they have never been constipated before, they mention digestive distress only vaguely if at all. That type of person, reckless as it sounds, I am increasingly determined to explore. I once heard a distinguished surgeon say that when he could not decide what was the matter with a patient who was having fever he automatically guessed that he had a liver abscess, and he added that his percentage of correct shots in the dark was a matter for congratulation. I am coming more and more to apply that rule to the type of patient I have just described, and I have saved some persons from death by way of carcinoma of the stomach as a result, though sometimes I have drawn a blank, and sometimes I have been too late.

Another type of patient with gastric disease I am also determined to explore, the patient, particularly the middle-aged patient, with a supposed gastric ulcer. I am not here concerned with the exact percentage of such cases which become malignant, though I cannot share the light-hearted view of those who believe that an incidence of five to ten per cent is not sufficient to warrant routine surgery. I share Lord Moynihan's view that neither the operative nor the autopsy evidence of the transition is reliable because the earlier pathologic stage is likely to be overlaid by the later malignant disease.

The important consideration, however, is not that some ulcers end as cancer or that some supposed ulcers were always cancer. The important consideration is that even by the most expert clinical and laboratory diagnosis the differentiation is not even approximately correct, and a guess, to quote Lord Moynihan again, is a poor peg on which to hang a man's life. In a series of 107 surgical deaths from peptic ulcer which we recently studied from the records of Charity Hospital there were 17 elective cases, in eight of which, almost 50 per cent, operation was undertaken on a diagnosis of cancer. In 200 surgical cases of gastric cancer which we studied from the same institution, 50 of the patients, 25 per cent, told a story perfectly typical of ulcer, and, more tragic, 29 of them had been treated for it and lost their lives as a result of the mistake. A temporary response to medical treatment is no proof that the disease is benign. Patients with a typical history of ulcer, with laboratory findings typical of it, with a confirmatory radiologic diagnosis, often prove the utter unreliability and worthlessness of that evidence by dying of cancer. Exploration in such cases is the only safe course, and I have more than one life to my credit because I have followed that plan.

Concerning the act of exploration, there is little to be said. It can be done under local analgesia if necessary, or under ethylene anesthesia, with practically no shock. The incison may be small to begin with and enlarged as necessary, though it should not be too small to permit adequate exploration. Under no circumstances should the McBurney incision be used. Whether or not it is the proper incision for acute appendicitis may be a matter of debate, but it is never the incision for exploration. I once saw a carcinoma of the stomach overlooked because the McBurney incision was used and the trouble was assumed to be the "chronically" inflamed appendix which underlay it. And that brings us to the point that exploration must be adequate. One must be certain that the major lesion has not been overlooked because a minor one has been found. I once saw a ruptured gallbladder overlooked until after a "chronically" inflamed appendix had been removed. We have found in our study of acute appendicitis three cases in which ileostomy was done for supposed intestinal obstruction while the ruptured appendix which caused the distention of the bowel was not found until postmortem. Hertzler, in a paper on acute abdominal disasters, has presented the salient findings within and without the abdomen for various acute pathologic states, and I strongly recommend its careful perusal.

It has been the custom for some years in my department at the School of Medicine of Louisiana State University to study series of cases from the records of Charity Hospital. By this plan we have analyzed 2715 surgical cases of acute appendicitis and 49 nonsurgical deaths; 200 surgical cases of gastric carcinoma; 735 cases of intestinal obstruction; and smaller series of carcinoma of the gallbladder, carcinoma of the hepatic duct, carcinoma of the liver and similar conditions. Almost all of our papers end with the conclusion that in any suspected case in which the condition under discussion cannot be definitely and positively eliminated, exploration is the only safe measure. We find ourselves amused, at intervals, over that inevitable conclusion. But I am not so sure that we should be amused. In the past patients have owed their lives to us because we acted upon that precept, and patients will continue to owe their lives to us if we continue to act upon it. Our aim is accuracy of diagnosis, but our practice, when we cannot achieve our aim, is immediate exploration, for to our minds that is the only method by which the lives of our patients can be safeguarded.

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# CONTINUOUS DRIP BLOOD TRANSFUSION

## (MARRIOTT)

## INDICATIONS FOR ITS USE WITH REPORT OF CASES*

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The institution of this newer method of administering blood by vein, namely by the continuous drip method, was adopted through the ingenious effort of Marriott in London. This internist was not content with the physiologic principles developed out of small or large doses of blood given by the varied systems of transfusion in modern usage. Marriott perceived the needs for much larger amounts of blood when administered slowly in certain cases, which did not require, and too, in other cases that would not permit, the administration of large quantities in a short period of time. The history of the first case cited in this communication may well illustrate that certain group of severe massive-hemorrhage cases which do not respond to repeated transfusions, but whose lives are saved because of the superior merits of the continuous drip when the latter is utilized.

It was Marriott's contention that blood transfusion is not sufficiently utilized and when used the blood is given in homeopathic doses. This condition is readily appreciated from the fact that a transfusion of 500 c.c. of blood to an adult does no more than augment his hemoglobin by some 8 or 10 per cent of its normal value. The present prospect of obtaining and preserving blood on a large scale for immediate use in unlimited quantities, denotes the need of the product and should surmount the difficulties of giving blood by continuous intravenous drip. This method at present requires more than one donor. As many as ten donors were used in one of Marriott's cases, yielding a total of 5620 c.c. of blood in 48 hours.

In two cases, each representing a severe and terminal state of a distinct condition, in which the continuous drip blood transfusion method was employed by the writer, a demonstration of the life-saving action of this procedure was made. The first example was one of repeated and exsanguinating hemorrhage from a large vessel in the bed of an old duodenal ulcer and the second exemplified hemorrhage dehydration and starvation in an intractable diarrhea caused by B. dysenteriae infection. In the latter instance, single transfusion of blood could not be undertaken because of circulatory embarrassment with coronary sclerosis making dangerous the overloading of the circulatory system with rapid transfusions.

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### MASSIVE DUODENAL ULCER HEMORRHAGES

Case 1. The patient, a known case of doudenal ulcer, was seen October 24, 1935, at 2 p. m., at which time he was found regurgitating bright red blood. The outline of a full stomach was clearly seen. The blood pressure was 100/60; pulse was rapid with a poor volume. After morphine a duodenal tube was inserted and the contents of the distended stomach proved to be blood.

A hypodermoclysis of 5 per cent glucose and 1 per cent saline was started and in 2 hours 1000 c.c. were absorbed, after which a direct transfusion of 250 c.c. of whole blood was given. The patient began to improve and by midnight his blood pressure was 116/70.

Improvement continued for 36 hours when the patient began to bleed again, evidenced by three liquid, tarry stools. He was taken to Hotel Dieu and 350 c.c. of whole blood was given by direct transfusion, after which a continuous infusion of 5 per cent glucose was started. The blood pressure remained up during the night, only to drop from 140 to 102/26. Another infusion of 1000 c.c. of 5 per cent glucose and 1 per cent saline was started. The blood count on that day showed 1,880,000 red blood cells and a hemoglobin of 40 per cent.

The following day his blood pressure was 108/28 and another direct transfusion of 500 c.c. whole blood was given. The blood pressure rose to 130 after the transfusion, only to fall to the previous level, for most of the day. The blood count showed 1,250,000 red blood cells and hemoglobin of 35 per cent.

On October 30, 1935 the blood pressure was 108/30 for most of the day, and another transfusion of 500 c.c. whole blood was given. The count showed 2,220,000 red blood cells and 45 per cent hemoglobin.

During the day Dr. Matas saw the patient and suggested using a continuous blood infusion of oxygenated citrated blood. This was given at 11:00 p.m. by Dr. Louis Levy, who had been called in consutlation, and continued until 4 p. m. the next day, during which time 1950 c.c. of citrated blood had been given. This was a period of 30 hours. The blood pressure rose to 117/50.

The following day, November 1, 1935, a hypodermoclysis of 1000 c.c. 5 per cent glucose and 1 per cent saline was given. From this period on the patient improved slowly and steadily until discharged December 3, 1935, with a blood count of 3,780,000 red blood cells and 55 per cent hemoglobin. The interval progress, as well as the detailed treatment with sedation, diet and hemostatics, are purposely omitted because space does not permit.

### DEHYDRATION AND NUTRITIONAL EDEMA OF BACILLARY DYSENTERY

Case 2. This case is that of a white male, 65 years old, who had a typical case of bacillary dysentery of three years' duration. After I had confirmed the diagnosis by means of proctoscopic examination, smear and culture, the Duval bacillus being isolated, autogenous vaccine treatment was administered by the family physician. During the three months previous to admission to my service at Touro, February 26, 1936, the patient manifested a hypersensitiveness to the vaccine, characterized by increased frequency of stools with more blood and mucus, resulting in the patient presenting a picture of emaciation, toxemia, dehydration and anemia. Some edema of the ankles, lower extremities and evidence of fluid in the abdominal cavity were the important findings. Red blood count was 3,370,000 and hemoglobin was 45 per cent.

The following day a continuous drip blood transfusion was started. After 800 c.c. of blood was given, 1000 c.c. of normal saline was added to the apparatus.

The next day the patient complained of a chilly sensation, but the pulse remained of good volume and the rate 85 until 11:00 a. m., at which time the temperature rose to 102.4 degrees. The edema of the lower extremities had subsided greatly. At noon another continuous drip infusion of citrated blood was started, but after 100 c.c. had been given, it was discontinued because the patient had a reaction. Glucose and saline were substituted for blood and by noon of the following day the patient had received 1200 c.c. of glucose and saline. The stools for the first time contained no blood and became yellow.

At noon on March 2, 1936, 20 c.c. of citrated blood was given intravenously as a test for sensitivity. No reaction followed and the continuous blood drip transfusion was started again. After

300 c.c. had been given the patient had another reaction, so an infusion of glucose and saline was substituted for the blood.

On March 3, 1936 the patient received 250 c.c. of glucose and saline by infusion. During the night of the following day the patient received 1350 c.c. of 5 per cent glucose and 1 per cent saline. From this time until discharge an April 13, 1936, the patient received no intravenous or subcutaneous fluid or blood.

The other details of the treatment are purposely omitted to save time. It suffices to say the patient was desensitized to his autogenous vaccine, given supportive treatment of the circulation, diarrhea controlled and the nutrition maintained.

### ACUTE BACILLARY DYSENTERY, TOXEMIA AND DEHYDRATION

Case 3. The patient, a 71 year old white male, was seen by me in consultation at Lexington, Kentucky. Clinically the case was typically one of an acute fulminating bacillary dysentery. When seen by me on August 22, 1936, the patient had been treated by the Graham method (sodium sulphate) and appeared very toxic, acidotic, dehydrated and fairly well exsanguinated from bowel hemorrhages. His bowels moved almost continuously with lots of blood and mucus.

The treatment during the month previous to my arrival consisted of several infusions of 5 per cent glucose and three indirect blood drip transfusions of 500 c.c. each.

On August 25, 1936 a continuous blood drip transfusion was started and within the next 16 hours 1000 c.c. of citrated oxygenated blood had been given. The following day the blood drip transfusion was started but discontinued after 150 c.c. had been given because of a febrile reaction and 10 per cent glucose was substituted. The patient showed some improvement for several days but began to have profuse bowel hemorrhages and a complicating genito-urinary infection with the dysentery organism and died August 29, 1936.

Autopsy revealed a distended colon with superficial ulcerations at the hepatic flexure. The ulceration increased toward the splenic flexure and in the sigmoid and rectum the mucosa was almost completely destroyed by the massive lesions. The left colon was attached to the lateral abdominal wall by soft adhesions which, when separated, produced a rupture in the bowel wall. Histologically the colon showed extensive necrosis which extended to the muscular coat in many places. The inflammation involved the muscularis and serosa. No ameba could be recognized in the abscesses or ulcer. The only other pathology of note was an acute pyelonephritis.

### SUMMARY

In the few cases herein cited the slow administration by vein of large quantities of blood rendered encouraging results. In fact this method in certain instances may be considered as life-saving. These transfusions have been of exceptional volume and duration. However, in my cases the average volume of blood given was smaller than the average in Marriott's cases. His transfusions averaged five pints, while the average duration of the procedure was 29 hours.

One of my cases serves to affirm the indication for continuous drip blood transfusion in uncontrollable hematemesis and melena from peptic ulcer. In Marriott's transfusion series of 76 cases, there were 22 such examples.

In my two cases of bacillary dysentery with hemorrhage, marked toxemia, dehydration and nutritional edema, I have demonstrated the effect of large quantities of blood slowly administered upon these serious conditions and in so doing added to the indications for the employment of this valuable procedure. In acute bacillary dysentery, often accompanied by severe toxemia and frequently rapid loss of fluids and essential food elements, the drip transfusion should be instituted in the early stages, thereby resting the ulcerated bowel while combatting the toxemia and at the same time maintaining nutrition with the essential vitamins and food elements. In long neglected and emaciated patients with chronic bacillary and amebic dysentery, this method of feeding such a patient also helps to overcome an associated anemia, while the extensively ulcerated bowel is given an opportunity to recover. In certain selected instances this procedure will thereby prevent the development of the more serious complications and sequelae of the dysenteries, namely perforation, hemorrhages, dehydration and nutritional edema.

The drip transfusion is to be recommended in certain other types of cases showing acute symptoms from deficiency (protein and vitamin) as exemplified by scurvy, pernicious anemia, ulcerative colitis, as well as in aplastic anemia and anemias due to toxic conditions. The surgical conditions necessitating, and often benefitted by the Marriott method, will not be discussed in this paper dealing in principle with medical cases.

I wish to thank Dr. Matas for first suggesting the use of continuous drip blood transfusion in this country, Dr. Louis Levy and his associates, and Drs. Ochs and Karlin for their cooperation in the technical part of this work.

### REFERENCE

Marriott, H. L., and Kekwick, A.: Continuous drip blood transfusion, Lancet, 1:977, 1935.

### DISCUSSION

Dr. Rudolph Matas (New Orleans): Dr. Marriott, Resident Medical Officer of the Middlesex Hospital, London, remembering my interest in the continued glucose and saline drip which I first introduced here early in 1913, kindly sent me reprints of his articles on the Continued Blood Drip, which he had devised in association with Dr. Kekwick, of the same hospital, and which were published in the Lancet of April 27, 1935.

In October, a few months after I had received these reprints, I was called in consultation by Dr. Silverman to see a mutual friend, Dr. D., whose case he so thoroughly described, and who seemed to have been almost completely exsanguinated by a fulminating gastrointestinal hemorrhage caused by a bleeding gastro-duodenal ulcer. The indications for a continued blood transfusion seemed to apply so perfectly to his case, that I suggested its application to Dr. Silverman. He, Dr. Levy, and other members of the Hotel Dieu staff who were especially concerned as attendants on Dr. D's case, immediately improvised an apparatus based on Marriott and Kekwick's model as described in their reprint, and put this in operation that same day, (Wednesday, October 30, 1935).

As Dr. Silverman has stated in his detailed report, I believe the institution of the continuous blood drip marked the turning point in the case, in so far as the permanent restoration of the pulse rate and pulse volume (blood pressure) and hemoglobin, were concerned. Over 500 c.c. of blood had been transfused at separate intervals almost every day during the five days that preceded my visit, but they had only produced a temporary improvement in the rate and volume of the pulse.

Almost from the moment the patient was brought to the hospital he was given a continuous glucose drip but only with temporary improvement until the blood drip was instituted. The blood drip was kept up steadily for over 24 hours, but had to be discontinued when signs of edema of the lungs appeared. When the blood drip and intravenous saline and glucose infusions were discontinued, the rales in the chest and the dyspnea ceased, but the volume and rate of the pulse remained permanently improved and no further infusions or transfusions were required throughout the remainder of the illness.

The long protracted and stormy convalescence of the patient (delirium, jactitation, insomnia) was the result of the profound and prolonged ischemia of the brain caused by the enormous vascular depletion at the time of the duodenal hemorrhage. It took weeks and months for the neurons of the cortex to regain their normal functional activity. The typical post-hemorrhagic fever was also notable because of its persistence and exhausting effects. The post-hemorrhagic fever is to be interpreted as a toxemia caused by the generalized cellular necrobiasis of the tissues, especially of the more sensitive visceral organs, following the anoxemia and blood famine of hemorrhage.

The point that I would like to emphasize in connection with the drip method of Marriott and Kekwick is that by this method large quantities of blood can be continuously introduced into the venous system with perfect safety and with far greater advantage qualitatively and quantitatively for the vascular system than by the use of plain saline or compound glucose solutions, which compensate for the lost volume but fail to supply the oxygen carrying erythrocytes, and the colloidal proteins of the plasma.

I need not refer to the essential features of the technic, as these have already been elaborated by Dr. Silverman and fully explained in the description of his improvised modification of the Marriott and Kekwick model.

Dr. Isidore Cohn, who recently visited Dr. Marriott at the Middlesex Hospital in London, obtained from him the latest model of his blood drip apparatus and also a copy of the unpublished paper which Marriott and Kekwick were to read at the Oxford meeting of the British Medical Association this July (1936). Dr. Cohn, who is unavoidably absent, has kindly loaned this latest report, from which I will quote the following conclusions:

"MAIN PRINCIPLES.—The principal purpose of the work has been an attempt to demonstate the desirability for radical revision of present conceptions in regard to *dose* of blood in transfusion. It is submitted that the present customary transfusion of a point (568 c.c.) or less is woefully inadequate in severely anaemic adults. It is sought to etablish the principle that the dose in blood transfusion should be mainly regulated by haemoglobin determinations with the purpose of restoring the haemoglobin percentage to the neighborhood of the lower limits of normality (e.g. say from 20 to 80 per cent).

"The adoption of this principle necessitates transfusions of the magnitude indicated in the above table. It should be remembered that, in the average adult, a pint of blood is only equivalent to 10 per cent of the total normal haemoglobin and can only augment the total percentage present by this amount.

"Our experience has shown that when the above principle is followed, and when really adequate volumes are transfused, the improvement in the patient is quantitatively commensurate. The change wrought is often so dramatic as to appear miraculous.

"The two principles underlying the proper practice of drip transfusion are:

(1) That the *dose* should be assessed by the haemoglobin deficit.

(2) That the *rate* of transfusion should be such as to permit of this measured dose being administered without danger—in practice, a rate not exceeding that required to raise the haemoglobin 10 per cent four-hourly.

"These principles have now been employed in 150 drip transfusions in adults at the Middlesex Hospital—the average transfusion having been 5 pints in 29 hours. (The largest single transfusion was 6.3 litres (11 pints). The longest single transfusion was 62 hours). In addition, 14 drip transfusions have been carried out in children between the ages of 15 days and 15 years. The results have been very encouraging. Recently, I. G. Wood in a careful study has confirmed the dramatic changes seen in patients following continuous drip blood transfusions.

"In the application of these principles to children the only difference depends upon their smaller size and proportionately smaller blood volume. In the assessment of *dosage* the assumption has been used that the total blood of a child is equivalent to 1/11 of its normal body weight. The adminstration of 1/10 of the calculated blood volume, in non-bleeding cases, produces a rise of 10 per cent of haemoglobin as in adults.

"Practice has confirmed this assumption and calculations based upon it.

"In regard to *rate* of transfusion it is considered, from our limited experience, that in children, as in adults, the haemoglobin should ideally be raised by not more than 10 per cent four-hourly. This many mean with a small baby a rate as slow as 2 drops per minute. In practice, however, with our present apparatus it is difficult to secure steady flows at rates less than 5 drops per minute. Consequently, we have tended to exceed the postulated ideal rate. For example, in the transfusions recorded above the haemoglobin was actually raised by 10 per cent two-hourly. No ill effects were observed. At the same time, this rate is regarded as being too fast. We are engaged in perfecting a simple device which it is believed will render possible steady flows at the lowest rate necessary.

"It will be noted in all the foregoing that drip transfusion has been put forward only in connection with the relief of anaemic states. It is now our considered opinion that in adults and children these massive transfusions have no other proven use. We deplore their employment in patients with normal haemoglobin values as such practice is highly dangerous.

"DONORS—The donors should all be compatible with the patient, and of the same group as one another. In a series of 87 drip transfusions, 390 donors were used, an average of 4½ donors per transfusion. Of the 390 donors, 333 were relatives or friends of the patients, and only 57 were from the Red Cross Society's magnificent service of voluntary donors.

"We have experienced relatively little difficulty in obtaining donors since adopting the practice in every case of putting the onus of responsibility firmly and forcibly upon the relatives whose duty it rightly is. We tell them it is up to them to raise ten or a dozen volunteers from among themselves and their friends, neighbours and workmates, and that we wash our hands of responsibility. Once the medical attendant appears to take the responsibility the relatives tend automatically to leave it to him."

At the present moment when blood transfusion is constantly growing in demand, especially in view of the almost unlimited quantities that can be injected by the continued drip, the question of "blood storage" or canning of blood in readiness for any demand has become a practical question, especially in those countries where provision for military emergencies is becoming more urgent and tangible than with us. In this connection, the use of preserved sterile cadaveric blood devised and safely applied in thousands of cases by Judine of Moscow, should be kept in mind; and likewise, the method of preserving a stock supply of blood cells and plasma fit for preservation and transportation over long distances, recently devised and successfully applied by Palazzo and Taconi, of Buenos Aires, Argentine, are acquisitions of great value at all times and circumstances in which compatible donors may be lacking.

As to the surgical question, whether to operate or not to operate while the hemorrhage is going on, it would seem that the logical procedure would be to operate immediately so as to stop the bleeding at its source but this is impossible, practically, while these patients are exsanguinated and in collapse. The prospect of improving the patients' condition so as to make them fit to stand the operation even while bleeding has vastly improved in recent years by the methods which provide for even a temporary blood replacement of the volume lost, whether by fractional transfusions or the infusion of artificial sera; but nothing, it would seem, could meet the actual replacement of blood loss like the continued blood drip.

It is hoped, therefore, that the new weapon for the treatment of hemorrhage provided by Marriott and Kekwick will soon be adopted in our hospital practice and surgical clinics, as a necessary adjunct to the current methods of transfusion and infusion.

For valuable references in this connection, see Marriott and Kekwick, Lancet, 1:977, 1935.

Proceedings Royal Soc. Med. 29:337, 1936.

Wood, I. J., British Med. J., July 18, 1936, pp. 115-121.

Dr. Louis Levy (New Orleans): My discussion, coming after the report of cases by Dr. Silverman, and the thorough review by Dr. Matas, can be of small moment.

I had the privilege, at the suggestion of Dr. Matas, of helping in the construction of this Marriott machine and of being the first one on that eventful Wednesday to use it. I may say that in looking at the use of this Marriott machine, I can see its advantages in the giving of blood. I did my first transfusion in New Orleans shortly after a visit to Crile's clinic some years ago, attaching the artery to the vein; that was the first type of transfusion done in New Orleans. Then afterwards we had the large bulb device that we carried from patient to patient, from vein to vein. Then we used syringes, after the discovery that citrated blood could be used from patient to patient. I was also the first to use the auto-transfusion, popularized by Dr. Burck. None of these methods of transfusion play a part in the continuous drip blood transfusion, which, as Dr. Matas has cautioned us, is only to be used in the severe anemias.

The first Marriott machine here was constructed by the engineer of Hotel Dieu and was like the machine loaned by Dr. Isidore Cohn, and was run on the patient as described in Dr. Silverman's article. We had all the donors we wanted and used four. Blood was poured into the machine and allowed to run in the vein of the recipient.

I believe the Marriott machine is the ideal type of apparatus for continuous administration of blood. The agitating by the oxypen keeps the blood from clotting and I have seen less reaction with this type of transfusion than with any other transfusion.

Dr. Samuel Karlin (New Orleans): The apparatus that we have here is of the original type used by Marriott and differs from the one used by Dr. Silverman only in the size and the type of filter; other than that the instruments are essentially the same.

It is important to keep the cotton dry during sterilization, otherwise it will be impervious to the passage of oxygen, and the apparatus may blow up.

# "TOXIC" POSTPARTAL HEART DISEASE*

EDGAR HULL, M. D.†
and
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NEW ORLEANS

It is a well known fact that pregnancy adds to the work of the heart, and that the diseased heart may fail during pregnancy because of its increased burden. It perhaps is not generally known that the diseased heart, which has performed quite efficiently during pregnancy, may fail after parturition, when the circulatory load has supposedly been reduced. Many of the patients who develop heart failure after childbirth have heart disease of the usual etiologic types; in some patients, however, whose hearts were presumably normal before pregnancy began, heart failure occurs in the apparent absence of the usual causes of heart disease. It appears, therefore, that there is a type of heart disease which is correlated with events that transpired during pregnancy or shortly after its termination. To this type the name "toxic" postpartal heart disease** has tentatively been given. "Toxic" postpartal heart disease presents a fairly characteristic clinical picture, and seems to constitute a fairly definite clinical entity.

## CLINICAL PICTURE

Symptoms appear at a variable time after parturition, most frequently within a month. The onset is usually gradual, early symptoms being swelling of the feet and ankles, slight dyspnea, and cough. Occasionally severe dyspnea occurs suddenly as the first symptom. Sometimes symptoms of cardiac embarrassment appear during the last few weeks of pregnancy, subside during the puerperium, and reappear when activity is resumed.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

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**The observation that heart failure is apt to appear after childbirth is not original; the term "postpartal heart disease" has been used by members of the visiting and house staff of Charity Hospital for several years.

Edema gradually increases in amount and extent, so that after a few weeks it is extreme, involving the face and arms as well as the legs; large effusions are present in the pleural, peritoneal, and sometimes the pericardial cavities. A few patients have little or no edema, dyspnea and cough being the only prominent symptoms.

The heart is greatly enlarged, the rate rapid, the rhythm regular. The heart sounds are soft, and diastolic gallop rhythm is almost constantly present. A systolic blowing murmur is frequently heard at the apex. The pulse is typically of extremely small volume, sometimes being almost impalpable. The diastolic blood pressure is usually elevated, the systolic often not much higher; such pressures as 120/110 or 125/105 are frequently encountered. In some patients both the systolic and diastolic pressures are definitely high.

The triad of anasarca, gallop rhythm, and small volume pulse is so characteristic that when it occurs in a young woman the examiner's natural question is, "When did you have your baby?" Almost invariably he gets the expected answer, "Two months ago," or "Six weeks ago."

Laboratory data are inconclusive. The roentgen ray shows enlargement of all the chambers of the heart. The electrocardiogram is abnormal in most instances, but not characteristic; all complexes are often low because of the extensive edema. The urine presents abnormalities similar to those seen in other patients with heart failure, although the amount of albumin tends to be greater. The blood shows a moderate anemia in most patients, severe anemia in a few; the chemical constituents ordinarily determined are within normal limits.

An outstanding characteristic has been the lack of response to the measures commonly effective in the treatment of heart failure. The administration of morphine and the mechanical removal of pleural and peritoneal fluid are the only measures that afford much relief.

In spite of the severity of the symptoms and the lack of response to therapy, the immediate outlook for these patients is good. Their condition usually remains stationary for a week or two, and then gradual improvement, quite unrelated to treatment, begins. Edema gradually subsides; dyspnea is relieved; the heart diminishes in size and gallop rhythm disappears; the diastolic pressure falls and the pulse pressure increases. Within two or three months after the onset of symptoms the patient is apparently well. Of about twenty-five cases observed personally by one of us, only one died in the hospital.

### STUDY OF THE CASE RECORDS

A summary of the case records of twenty-seven patients with "toxic" postpartal heart disease* is presented in table I. Since no spe-

TABLE I

| | | |
|---|---|---|
| (1) | Race | |
| | White | 9 |
| | Colored | 18 |
| (2) | Age | |
| | -20 years | 2 |
| | 20-29 years | 13 |
| | 30-39 years | 12 |
| | 39- years | 0 |
| (3) | Number of Pregnancies | |
| | Para I | 9 |
| | II | 2 |
| | III | 1 |
| | IV | 5 |
| | V | 3 |
| | VI or more | 7 |
| (4) | No patient had significant cardiac symptoms prior to pregnancy. | |
| (5) | Three patients had slight cardiac symptoms during pregnancy. | |
| (6) | Two patients had similar attacks following earlier pregnancies. | |
| (7) | Four patients had definite toxemia during pregnancy preceding heart failure: one eclamptic, two non-eclamptic. | |
| (8) | Three cases followed twin pregnancies. | |
| (9) | Relation of onset to delivery | |
| | Before | 6 |
| | (All within 4 weeks) | |
| | Previous to 1 week after | 5 |
| | One week to 1 month after | 9 |
| | One to 2 months after | 2 |

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*The criteria used in selection of the cases were: (1) definite cardiac failure occurring in women within six months after childbirth, (2) apparent absence of the usual etiologic types of heart disease.

| | | |
|---|---|---|
| More than 2 months after | 3 | |
| Questionable | 2 | |
| (10) Symptoms | | |
| Gradual onset | 24 | |
| Sudden onset | 3 | |
| Dyspnea | 26 | |
| Edema: Slight or moderate | 9 | 23 |
| Edema: Anasarca | 14 | |
| Fever | 3 | |
| Vomiting | 2 | |
| (11) Physical Signs | | |
| A. Blood pressure | | |
| Normal | 6 | |
| High | 8 | |
| High diastolic only | 13 | |
| B. Heart Sounds | | |
| Gallop rhythm | 19 | |
| Tic-tac rhythm | 1 | |
| Other abnormalities | 2 | |
| Questionable data | 5 | |
| C. Murmurs | | |
| Apical systolic | 16 | |
| Questionable basal diastolic | 2 | |
| None | 7 | |
| D. Heart Size | | |
| No enlargement | 0 | |
| Moderate enlargement | 9 | |
| Marked enlargement | 13 | |
| Questionable data | 5 | |
| (12) Laboratory Data | | |
| A. Urine | | |
| Albuminuria | | |
| None | 5 | |
| Slight | 10 | 22 |
| Moderate | 6 | |
| Marked | 6 | |
| Essentially normal urine | 6 | |
| Nephritic type urine | 4 | |
| Nephrotic type urine | 5 | |
| Heart failure type urine | 12 | |
| B. Blood | | |
| (Total non protein nitrogen) | | |
| Normal | 18 | |
| Elevated (definitely) | 1 (109 mg %) | |
| Anemia | | |
| Moderate | 2 | |
| Severe | 4 | |
| None | 4 | |
| No data | 17 | |
| C. Electrocardiogram | | |
| Normal | 4 | |
| Low voltage | 7 | |
| Definite left ventricular predominance | 6 | |
| Other abnormalities | 11 | |
| (13) Course and Fate | | |
| Mild | 8 | |
| Stormy | 17 | |
| Died | 2 | |
| (14) Condition on Discharge | | |
| Good | 20 | |
| Poor | 4 | |
| Questionable | 1 | |

cial studies were made of these patients, it is inevitable that a good bit of desirable information is lacking. Because of possible inaccuracies in the records and of bad judgment on our part in the selection of cases, it is likely that a few or several cases of heart disease due to the ordinary etiologic types have been included.

Scrutiny of table I reveals the following interesting facts regarding "toxic" postpartal heart disease:

1. It occurred twice as frequently in colored persons as in whites.
2. It followed the first pregnancy more frequently than any subsequent one.
3. The incidence of toxemias of pregnancy and twin pregnancies in the group was high.
4. All of the patients were apparently free of heart disease before the inception of pregnancy.
5. Symptoms began within a month after delivery in the majority of cases.
6. The clinical picture as described is essentially correct.

### SUBSEQUENT FATE OF THE PATIENTS

Letters were sent to the twenty-five patients who recovered and to the physicians who referred those patients to the hospital. From the replies to these letters the fate of twelve of the patients was learned (table II). A study of this table indicates that if patients with "toxic" postpartal heart disease survive for a few months, they usually make complete recoveries, but that the condition may recur following subsequent pregnancies. Two patients returned

Later Fate of Twelve Patients with "Toxic" Postpartal Heart Disease; Eight Living, Four Dead

| Patient<br>Age at discharge<br>Race | Course in Hospital | Condition on discharge | Time elapsed since discharge | Present cardiac symptoms | Subsequent pregnancies | Subsequent "toxic" postpartal heart disease | Source of information |
|---|---|---|---|---|---|---|---|
| C. C.<br>24 W | Stormy | Good | 3 years | None since discharge | One (miscarriage) | No | Patient |
| B. B.<br>24 W | Very stormy | Apparently moribund | 6 years | None, one year required for complete recovery | Two (full term) | No | Patient |
| F. J.<br>25 W | Very stormy | Good | 7 months | None since 30 days after discharge | None | | Patient |
| V. D.<br>31 B | Mild | Good | 18 months | Dyspnea on exertion, no edema | One (full term) | Yes, all but the swelling | Patient |
| L. F.<br>22 B | Very stormy | Poor, deserted | 5 years | None since 4 months after discharge. No signs of heart disease. B. P. normal. | None | | Patient and personal interview |
| J. H.<br>21 W | Stormy | Fair, deserted | 18 months | Dyspnea, no edema. | None | | Patient |
| R. B.<br>36 W | Stormy | Good | 20 months | None, one year required for complete recovery. | | | Patient |
| M. R.<br>38 B | Very stormy | Good | 2 years | None since discharge. No signs of heart disease. B. P. normal. | None | | Physician and personal interview |

Deaths

| Patient<br>Age at discharge<br>Race | Course in Hospital | Condition on discharge | Duration of life following discharge | Cause of death | Source of information |
|---|---|---|---|---|---|
| L. T.<br>39 B | Stormy | Good | Few weeks | "Bright's" disease | Acquaintance |
| E. H.<br>38 B | Mild | Good | 1½ months | Cardiovascular disease | Physician |
| M. M.<br>25 B | Mild | Fair | Few weeks | Unknown—was not seen by physician after discharge | Physician |
| M. Mc.<br>20 B | Stormy | Poor, deserted | ? | ? | Postmaster |

for examination. Both presented normal cardiac findings, though they had had extreme failure two and five years before respectively.

### PATHOLOGY

There was only one necropsy in the series. The patient was a negro girl of 16 years, a primipara, who presented the typical clinical picture described, with extreme anasarca, gallop rhythm, and small pulse pressure. She had had dyspnea and edema for four weeks prior to delivery, but her symptoms became much worse after the baby was born. She gave no history of fever during the puerperium. She was very sick on admission, but after a few weeks gradual improvement began, and at the end of four weeks she was not dyspneic and was free of edema. After she had been allowed to sit up for short periods, she was imprudently allowed more activity. While walking to the bathroom she suddenly became markedly dyspneic and signs of acute pulmonary edema set in. In spite of venesection and rapid intravenous redigitalization, she died in about ten hours.

The heart was enlarged but its weight not increased; it weighed only 260 grams. The ventricular walls were of normal thickness. No valve lesions were present. The heart muscle was pale and friable. The gross anatomic diagnosis was diffuse non-suppurative myocarditis. Microscopically there were degeneration of the muscle fibers, interstitial hemorrhage, and perivascular accumulation of lymphoid cells.

Intense pulmonary edema was present. In the liver, spleen and kidneys healed infarctions were found; except for the small infarcts the kidneys were normal, revealing no anatomic evidence of pre-existing hypertension. Organized thrombi were found in the pelvic veins.

### PATHOGENESIS

The data presented renders it certain that the relationship of pregnancy to heart failure was not coincidental in these patients, and unlikely that more than a few of them had heart disease before their pregnancies began.* Of the common etiologic types of heart disease, these cases resemble the hypertensive most closely, and it is not improbable that a few of the more elderly patients had essential hypertension. In most of the cases of postpartal heart disease, however, there are striking differences which distinguish them from heart failure due to essential hypertension,** and which indicate that these patients did not have high blood pressures before the onset of pregnancy.

It is clear, therefore, that "toxic" postpartal heart disease is due to factors that operate during pregnancy or shortly after its termination. While the data at hand are insufficient to justify definite conclusions regarding the cause of this condition, we believe that four factors which are usually or frequently present during pregnancy or the puerperium are probably concerned. These are:

1. The water retention of normal pregnancy[1].
2. Puerperal infection.
3. Toxemia of pregnancy.
4. Nutritional deficiencies.

The first factor alone cannot produce the clinical picture seen in these patients, but it might precipitate or increase edema primarily due to other causes.

Puerperal infection might act indirectly by causing anemia and increasing the body's need for protein and vitamins, or by producing glomerulonephritis with hypertension and edema†; it would hardly produce serious myocarditis directly, for heart failure does not commonly supervene in the most severe cases of childbed fever. It will be recalled that four of the patients had urinary abnormalities consistent with glomerulonephritis, and in the one case that came to autopsy evidence of past sepsis was present.

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*(1) The absence of cardiac symptoms prior to the inception of pregnancy, (2) the fact that "toxic" postpartal heart disease can frequently be diagnosed before it is known that the patient has recently had a baby, (3) the relatively low mortality in the series, (4) the complete recovery of a considerable percentage of the patients.

**(1) Lack of predominance in more elderly patients, (2) low incidence of left ventricular preponderance in the electrocardiogram, (3) marked reduction in heart size as improvement occurs, (4) return of blood pressure to normal, (5) absence of cardiac hypertrophy and renal arteriolosclerosis in the one autopsied case.

†Glomerulonephritis not uncommonly follows very mild postpartal infections[2].

During toxemias of pregnancy three factors might operate to produce myocardial damage and edema: hypertension, albuminuria and hypoproteinemia[3], and water retention. Four of the patients definitely had toxemias, and similarities in the incidence of "toxic" postpartal heart disease and toxemia of pregnancy (predominance of negro patients, more frequent occurrence in primiparae, and high incidence of twin pregnancies in both) indicate that many or most of the others may have had asymptomatic toxemias.

Nutritional deficiencies might include deficient intake of iron, which would cause anemia; of protein, which would predispose to edema; and of vitamins (especially vitamin B) which would lead to water retention and myocardial weakness. Detailed dietary histories were not available in the case records studied, but it is definitely a fact that the diets of the poorer persons in this section are low in animal protein (and often in total protein) and in vitamins; it is not, therefore, far fetched to conceive that in women with subclinical deficiency states the added nutritional burden of pregnancy may cause the development of clinical symptoms.

The striking clinical similarity between "toxic" postpartal heart disease and the cardiac form of beriberi affords evidence of the probable importance of dietary deficiency in the pathogenesis of the former*. Further evidence is afforded by the recent observation of a patient who developed definite signs of peripheral neuritis after childbirth, together with the manifestations of "toxic" postpartal heart disease as we have described it. Her diet during pregnancy had been grossly deficient in protein and in vitamins; in addition she had a moderately severe puerperal infection. This patient definitely had beriberi, yet the occurrence of neuritis was the only feature that distinguished her illness from the other cases of "toxic" postpartal heart disease. It might be that if other factors which predispose to edema are present vitamin B deficiency will cause cardiac failure without concomitant neuritis. Interesting in this connection is the recent clinical study of Strauss[1], which suggests a possible role for protein and vitamin B deficiency in the causation of toxemias of pregnancy.

We cannot explain why symptoms do not appear until after delivery in the majority of the patients, when most of the pathogenetic factors we have considered presumably operate in lesser degree. Puerperal infection may account for their postpartal occurrence in some of the cases, but certainly not in all. Factors which have not been suspected may be present after delivery; lactation and resumption of full activity may be concerned; metabolic and endocrine maladjustments are possible factors; perhaps other sequelae than hypertension[7] and renal damage are left in the wake of pregnancy toxemias. The enticing teleologic explanation is that nature protects the pregnant woman so that the race may be perpetuated.

If the factors considered are concerned in the causation of postpartal heart failure, its incidence might be reduced by prescribing diets for pregnant women which are adequate in protein, iron, and vitamins. To patients of the poorer classes, additional iron may be given as iron and ammonium citrate or Blaud's pills, and the vitamin B of the diet supplemented by the use of brewer's yeast. Patients with toxemia of pregnancy, even though this be asymptomatic, should receive diets high in protein and vitamins, and liquids should be restricted rather than forced. Patients who have heart disease prior to the inception of pregnancy, toxemia during pregnancy, or postpartal infection should be kept in bed for several weeks after delivery, and resume activity very gradually. The slightest symptoms of cardiac embarrassment during the latter months of pregnancy or after the puerperium should call for rest in bed, fluid and salt restriction, and a high protein, high vitamin diet.

### TREATMENT

Although the response to the usual measures used in the treatment of heart failure is not striking in postpartal heart failure, it is hardly justifiable to omit these measures. The patient should be digitalized, fluid and salt restricted, and diuretics employed. Salyrgan may be given if the usual precautions attendant to its use are taken. Morphine must be given freely, and it is of great importance to remove large effusions in the pleural, pericardial and peritoneal cavities. Mechanical removal of edema fluid from the labia and legs by use of Southey's tubes or needles may also be resorted to advantageously. Venesection is of benefit when dyspnea is extreme.

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*The clinical picture of these two conditions is identical if the neurologic manifestations of beriberi are excepted.[4, 5, 6]

Measures directed toward correcting possible pathogenetic factors also seem justifiable. The diet should be high in vitamins, and in protein unless there is nitrogen retention (extra protein may be added in the form of ground meat, liver, and egg white), and the vitamin B content supplemented by the administration of brewer's yeast or wheat germ extract. Iron should be given in large doses in the presence of anemia.

Rest in bed should continue several weeks after all edema has subsided, and resumption of activity should be very gradual.

### ADDITIONAL CASES

Since the data used for this report has been compiled, we have observed four additional cases of "toxic" postpartal heart disease, all in colored patients. On these we obtained detailed dietary histories, complete blood pictures, and serum protein estimations. The diets of these patients apparently differed in no way from those of other negroes in this section. Anemia was present in all; moderate in two, severe in the others. The serum albumin was definitely low in all of the patients, but not much lower than the levels observed by Andes et al in normal negro males. There were no signs of neuritis in any of the patients. None of them gave a history of fever after delivery. One patient in addition to the usual symptoms observed in these cases, had profuse hematemesis on two occasions during her stay in the hospital.

Two of these patients had been delivered in the Charity Hospital. At the time of delivery they had no cardiac symptoms, and examination of their hearts had revealed normal findings; nor were their blood pressures elevated before delivery. In both of them the puerperium was uncomplicated. The normal cardiac findings before delivery suggest the probable importance of factors that operate after delivery. What these may be, we do not know.

### SUMMARY

Congestive heart failure, not due to any of the usual etiologic types of heart disease, sometimes occurs in women shortly after the termination of a pregnancy. The causes of the failure are believed to be factors that operate during pregnancy or the puerperium, or both. This type of heart disease has tentatively been named "toxic" postpartal heart disease for want of a better term. It closely resembles the cardiac form of beriberi in symptoms and signs, and it is believed that relative food deficiencies probably are concerned in its pathogenesis. Other possible etiologic factors are the hypertension, hypoproteinemia and water retention of toxemia of pregnancy, the tendency to edema present in normal pregnancy, and puerperal infection.

This condition offers a better prognosis than heart failure of similar severity due to the usual causes, and complete restoration of the heart to normal is apparently possible.

The clinical picture of "toxic" postpartal heart disease is described, and data gleaned from the case records of twenty-seven patients are presented. Suggestions for its prevention and treatment are given.

### DISCUSSION

Dr. M. D. Hargrove (Shreveport): I think Dr. Hull asked me to open the discussion of his paper because I showed him in Shreveport a year or so ago a patient that he felt came under this classification. Our interest was first aroused by seeing two white women in the Shreveport Charity Hospital who had been delivered within two months' time of each other by the same doctor, in the same community, and both of them had this typical group of symptoms as described by Dr. Hull. In addition to having these symptoms, these two patients and others we have seen, had this in common; they had not been to a doctor during the course of pregnancy, never had urinalysis made, or a blood pressure reading. We were unable to tell what had gone on during the course of the pregnancy. We believed that the cardiac symptoms developed during pregnancy due to some toxic factor; they did not give the impression of a nutritional disturbance though some did have a slight anemia. We also felt that the two things which helped these patients most were rest and digitalization. Apparently they developed the cardiac symptoms from two to five weeks after delivery or after they were allowed up.

I have seen other patients with this same group of symptoms developing a few weeks after delivery, and who apparently had this same type of heart disease, if there is such a type. Some of these have died, and at autopsy there has been definite evidence of some form of chronic heart disease. One patient I recall had rheumatic heart disease.

Dr. Oscar Blitz (New Orleans): I have seen eight or ten cases with Dr. Hull at Charity Hospital during the last two years. As Dr. Hull said, anasarca, gallop rhythm, and the very small pulse pressure, have been seen in all the cases I have personally observed.

With reference to Dr. Hargrove's patient who he said had some organic lesion in rheumatic heart disease, we had a patient (Dr. Hull did not include this patient in the survey) of whom I would like to give a short history. She was admitted to Charity Hospital in 1934, had been to the antepartum clinic, no signs or symptoms of toxemia; was delivered the latter part of December and at that time blood pressure was 120/80. She showed no cardiac symptoms, no decompensation. She was discharged from the hospital eight days postpartal; came back in May of the following year and gave a history of having symptoms of cardiac decompensation six weeks following delivery. At that time in the interne's history, we found this patient had all the clinical signs and symptoms which Dr. Hull described in his paper. She was not discharged, she deserted. She was readmitted to the hospital in October of that same year and again decompensated. At this time, some compensation had taken place and she was discharged with the diagnosis of rheumatic heart disease and mitral stenosis. Some mistake was made. We first saw this patient in February 1936, she had been decompensated for six weeks. She was markedly decompensated and the anasarca was mostly ascitic fluid. The laboratory work showed a rather low plasma protein, about 5.6 gms. per 100 c.c. She was put on high vitamin diet and she improved for a period of three weeks. However, she deserted at this time also and no follow up was possible.

Dr. Edgar Hull (In conclusion): Because of lack of time our consideration of the pathogenesis of heart failure in these patients was necessarily sketchy; our reasons for believing that nutritional deficiencies, puerperal infection, and toxemia of pregnancy are concerned are included in the manuscript of the article.

We did not intend to imply that all women who develop heart failure after delivery had normal hearts before their pregnancies began; on the contrary, most of them had organic heart disease which antedated their pregnancies, usually rheumatic or hypertensive in causation. We do believe however, that most of the cases we have included in this study had normal hearts before the beginning of their pregnancies; these cases have been selected from a much larger number of cases of heart failure that occurred postpartum. We also believe that the same factors that produce "toxic" postpartal heart disease may further damage a heart which is already the seat of organic disease.

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# DIAGNOSIS AND CONSERVATIVE TREATMENT OF ETHMOIDITIS*

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The limited time allotted for this brief paper does not permit a detailed description of the anatomy of the ethmoid sinuses. It is fairly well developed at birth, and comprises almost one-half of the respiratory area of this region. It is natural to infer that it is more liable to infection and disease than the other sinuses that develop after the fourth or fifth years of life. Ethmoiditis may be classed as acute catarrhal, acute suppurative, open and closed; chronic suppurative, open and closed; and chronic catarrhal or hyperplastic. It is the latter, or chronic catarrhal or hyperplastic type, that I shall stress mostly, as it is from this type that we get most of the reflex disturbances and focal infections, as a result of absorption over a long period. It is very easy for one to find a focal infection if it is located in the tonsils, teeth, or in a suppurated maxillary empyema and very easy to overlook it when in the more obscure ethmoid cavity. Etiologic factors are anatomical obstructions such as deviated septal deflection, narrow nares, septal spurs and malformations.

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J. W. Carmack, of Indianapolis, in one hundred cases of nasal sinusitis over a period of four years, in which cultures were taken directly from the sinus operation, found a variety of organisms, but only three occurred with reasonable constancy. These in order of frequency were: staphylococcus, pneumococcus, and streptococcus. Also lowered resistance as a result of faulty nutrition is a frequent cause of sinusitis. It has been proved that a diet low in vitamin A is often the cause of infection of the upper respiratory tract.

### SYMPTOMS

Acute catarrhal inflammation here constitutes part of the acute colds and is important, principally when these tissues, or parts of them, suffer the brunt of an attack or continue infected after the other regions are convalescent or recovered. There is a feeling of marked fulness of the nasal passage and naso-pharynx. The condition is bilateral except in such cases as marked acute exacerbations of a chronic infection in a restricted area.

Headaches, especially at the base of the nose, and extending to the orbits, anosmia, dry throat due to mouth breathing, neuralgic pains, malaise, dull hearing from faulty ventilation of the middle ear, all the symptoms of acute colds exist. The acute congestion around the cell openings causes retention of secretion and an increasing obstruction with discomfort and pain. These symptoms are further increased by complete closure of outlets which later result in acute empyema. Here the patient is free of malaise and most of all the headaches, anorexia, and other phenomena of an acute cold, but the fulness in the nose continues in one side, or both. The serous discharge may be reduced in volume, but continues somewhat thickened and the headache becomes more localized. A possible nasal discharge may be noted and the obstruction is observed to be continuous, or more nearly so. Open suppuration has, as its most common feature, discharge of the anterior ethmoids if the anterior cells are involved, posterior if the posterior cells harbor the infection. One-sided suppuration almost invariably points to a sinus infection. The headache becomes accentuated and is often of neuralgic type.

Ocular symptoms with inability for concentrated vision are almost always present. Anosmia, dry throat, with a glazed appearance from the discharge, and bad taste in the mouth, all combine to increase the patient's discomfort. After thorough anesthesia and shrinkage of these acute processes, the mucus membrane appears hyperemic and velvety with some petechiae and pearly elevations marking the points of greatest irritation. The discharge, when wiped away, may reappear at different parts. Here, by holding the middle turbinate over against the septum, the three points of the discharge for the anterior ethmoid may be seen. If the uncinate cells are infected, the discharge will reappear only in this location; likewise, for the posterior section emptying at the lower end of the hiatus and frontal cells high up close to the naso-frontal duct.

Chronic open suppurative ethmoiditis, as the acute open variety, has a purulent discharge as the most prominent symptom. According to location of the process, the discharge will be principally anterior or posterior. Likewise, the crust formation, which to the patient will be the most annoying complaint, will be blown in slugs into the handkerchief, and by clinging to the choana, will produce nausea and gagging to expel it posteriorly. At times, the crusts produce fits of violent sneezing. Headache is not constant.

The general health is frequently impaired, neuralgias are common and distal joints and tissues may be subject to infections from this focus. Repeated acute exacerbations make the patient think he is a marked subject for acute cold in the head. Different from the acute inflammation, the nasal discharge in such cases is almost at once purulent. This is a diagnostic point of some importance and used rightly may excuse an inability to provide prompt relief to the complaining patient. Again, the crust formation may produce violent fits of sneezing and this or other forcible dislodgement of crust may give rise to epistaxis, either in the form of a constant tingeing of the discharge or a profuse flow. A dry pharynx is a very frequent source of complaint, especially when the posterior cell group is involved.

Personally, I think that all cases of granular or follicular pharyngitis are positive indications of chronic ethmoiditis. Polypoid degeneration and polypi are often seen and their location is of value in the diagnosis of chronic open suppuration. In chronic closed empyema of the ethmoids, there is the same manifestation as in the acute process, plus the phenomena of focal infection and reflex disturbances.

Chronic empyema may be changed into an acute one at any time. Hyperplastic ethmoiditis is essentially a chronic process in which the symptomatology is wide and varied, with frequent acute exacerbations, often from trivial causes which serve usually to multiply and intensify the subjective manifestations. The headaches are mostly of the neuralgic type and may be in any of the one or more regions supplied by the nerves or ganglia in contact with the ethmoid region. The ocular disturbances are mostly sensory, although they may be motor, especially of the third and sixth nerves. Photophobia, scotomata, vitreous-opacities and even loss of vision may be experienced.

Disturbances of the sense of smell and hearing, as mentioned in the other types, are almost always present and intensified areas of polypoid degeneration and polypi may be abundant or practically absent, but are almost constant in the cells in long standing cases. Skillern thinks where there are no signs of pus and polypi are present, the diagnosis is certain. Transillumination is of no value in ethmoid and sphenoid examinations. Roentgen rays in the hands of a specially trained roentgenologist are of inestimable value but may be equally misleading in the hands of one not trained in deep sinus work.

The chief complaints other than local symptoms are gastrointestinal, as poor appetite, indigestion, chronic colitis; neuritis, usually of the back, shoulders, and arms; rheumatism, muscular, synovial soreness, and subacute joint inflammations; cardiac, usually in the form of myocarditis, and endocarditis; pulmonary, as a chronic cough, asthma, tracheobronchitis, bronchitis, bronchiectasis and peribronchitis.

John G. McLaurin mentions the four following routes of infection to the lungs: (1) lymphohematogenous, (2) hematogenous, (3) direct aspirations of infectious material into the trachea and bronchial tree, (4) direct continuity of tissue.

## TREATMENT

Treatment must be both general and local. During the acute attacks, general treatment, including emptying the intestinal tract with mild cathartics, rest in bed, alkalines, light, nutritious, low protein diet and the use of such remedies as are necessary to make the patient comfortable. In way of local treatment, the basic principles of ventilation and drainage should be followed in all acute infections of the nasal sinuses. This should be done with the mildest astringents and with the least trauma possible. An aqua-ephedrin solution is very satisfactory, as it is less irritating and lasts longer. Any antiseptic pack used should be small enough to pass well up against the sinuses without pressure or trauma, as it is very easy to produce irritation, intensifying a condition we are trying to correct.

Light therapy is of unquestionable value. Suction, if used, should be handled with great caution, as there is great danger of producing trauma and herniation of the soft and swollen tissues. Promiscuous use of nose drops and sprays by the patient should be discouraged, as the over treatment often causes irritation of the nasal mucous membranes, thereby intensifying the symptoms.

In chronic types, the treatment should be directed to methods of ventilation and drainage. All anatomical obstructions, as polypi, spurs, high septal deflections should be corrected surgically. Heat, applied directly against the cells by means of diathermy, has given me most encouraging results. After thorough shrinkage, a cotton tampon wound around a metal core, and saturated with 10 per cent argyrol is passed well up against the ethmoid cells, using 250 milliampers for twelve or fifteen minutes, repeating twice a week. In the closed hyperplastic type with hyperplasia of mucous membrane and polypoid degeneration, surgery is the only means of relief, but should be done with as much preservation of turbinates as possible. Proper correction of diet is of great importance in the undernourished and vitamin deficiency cases should be studied and corrected.

### CONCLUSIONS

The greater per cent of cases will clear up under conservative local and general treatment; and surgical procedures, if necessary, should be limited to the establishment of adequate drainage.

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### DISCUSSION

Dr. A. M. Peters (Alexandria): There are two distinct classifications of ethmoiditis, the acute and chronic. Of the first there is the acute catarrhal and the acute purulent, of the second there is the chronic catarrhal and the chronic purulent. In all acute cases and in the chronic cases of catarrhal type conservative therapy should be the procedure. In chronic purulent cases conservative treatment plays no role.

A majority of rhinologists favor conservative therapy. Ethmoid sinusitis is no exception, and its accompanying edema and orbital cellulitis in acute cases are no longer regarded as indications for an immediate operation. The turn from early surgical procedures is one of the comparatively recent advances in rhinology. Anatomic, embryologic and physiologic studies of the sinuses and of the upper respiratory tract have thrown new light upon the pathologic events in the nose and sinuses. Experiments have shown that an exenterated sinus can never fully regain its normal function, and any measure adopted for relief the therapeutic aim is to relieve the pathologic and re-establish physiologic conditions.

It has been shown that the nose and para-nasal sinuses form an embryologic, anatomic and functional unit, and that disease of one part affects the whole upper respiratory unit. There is no rhinitis, neither allergic nor bacterial, without a congestion of all the sinuses. There is very rarely an ethmoiditis without a similar affection of the frontal and maxillary sinuses. Some part, usually the nose, is always earlier and more intensively affected by allergins, bacteria or viruses than any other parts of the naso-sinusoid unit. It is the purpose to combat the disease at the site of first attack. Anatomic abnormalities obstructing the naso-sinusoid ducts or neglected treatment of rhinitis are chiefly responsible for faulty drainage and stasis of secretion in the sinuses. Stasis is no infection, but it favors infection by preparing a proper culture medium for bacteria. In such cases it is evident that the sinuses need more than a simple application of heat or drops or sprays. Anatomic obstruction calls for conservative surgery in the acute cases, doing a minimum that will promote ventilation and drainage, and at a second sitting later complete the operative procedure, thoroughly removing all bony obstructions blocking the nasal airway or sinus ducts. In those cases of obstruction from marked hyperemia and edema consequent to a simple or allergic rhinitis, the nasal airway and sinus ducts may be kept open by proper use of one or more of the accepted remedies. This means more than the simple application of cocaine with ephedrin, adrenalin or argyrol packs. It means that these drugs should be used in the office for a sufficient length of time and aided when necessary by moderate negative pressure until the nose and sinus ducts are well open, and this followed at home by frequent sprays of ephedrin or the like, until acute symptoms have subsided. In addition to local measures drugs are prescribed to aid in relief of pain as indicated.

Proper drainage of the sinuses is the desideratum. The less surgical intervention, and particularly in the acute cases, the better. Shrinkage of nasal mucous membrane and sinus ducts with consequent drainage may be had by local use of butyn with adrenalin or ephedrin aided in obstinate cases by use of argyrol packs and negative pressure. In the acute cases general care of the patient is always indicated; this includes rest, elimination and proper diet.

There are cases where surgery is the only safe choice but routinely I am for local measures first. When properly applied these yield a large percentage of favorable and satisfactory results. I believe in conservative treatment of ethmoiditis and the other para-nasal sinusitis, using local measures with patience and detailed attention to their application and surgery as indicated.

Dr. W. A. Wagner (New Orleans): Regarding the symptomatology of ethmoiditis, the essayist did mention the numerous symptoms and went so far as to include asthma as one of the symptoms, but there are other symptoms which are really very suggestive of ethmoiditis, particularly the old chronic type of ethmoiditis in which there may be a very chronic, mild empyema with some material accumulating in the spheno-ethmoidal recess due to drainage from a low-grade infection. In such a case, the patient detects a peculiar odor in his own nose that is not even detected by the people about him. Other disturbances of olfaction are characteristic symptoms, as anosmia, hyperosmia and hyposmia.

On the other hand, there are variations in the sinuses which affect the symptomatology and it is known that the ethmoids are morphologically very irregular. They are not constant, not only in number but in location and delineation. They may replace a sphenoid, for example. They may be high over the orbit, or way back under the orbit. Consequently, symptoms vary in proporton to the morphology. For example, there is the patient who comes in with the point of fixation, instead of being up close, shoved off to a great extent; in other words, elongation of the point of fixation. There is a loss of accommodation and convergence due to a weakening of the intra-ocular muscles and the muscles of the orbit from absorption of toxic materials. The internal rectus is the most frequent and greatest weakened and the eye tends to turn out, exophoria. One may have neuritis of the optic nerve itself, a true choked disk or papilledema, or a neuroretinitis. In those instances the patients have diminished visual acuity in addition to diminished color acuity. They may have enlargement of blind spot, central and paracentral scotomata, relative or absolute. In addition to that, there may be nerve phenomena or symptoms. The regular Sluder syndrome, which the essayist talked about, the ethmoidal nerve pain, supra-orbital or within the eye, or the cervical syndrome in which the pain radiates down the neck and over the shoulders. There may be some of the characteristic ear symptoms where the ear is absolutely normal, although otitis media of the chronic type is sometimes associated with eustachian tube obstruction produced by drainage posteriorly.

Vertigo, a frequent symptom, may be explained in two ways. It may be toxic, on one hand, due to a vasomotor disturbance; on the other, it may be a nerve reflex through the sphenopalatine ganglia, which is connected through the great deep petrosal nerve with the cervical sympathetic plexus and sympathetic nerves of the cartoid plexus and with the supracervical ganglion of the cervical plexus, and by the nerves following out the internal tympanic branch of the occipital and auditory arteries.

I think one of the best measures in arriving at a diagnosis of ethmoiditis is by endoscopy of the nose. I think the endoscope, which is smaller, is really more suitable; I prefer it as you can get back into the recesses and really find the pathology. You do not have to wait until there is ectasia of the ethmoids or ectasia of the turbinate, where the ethmoid clamps the middle turbinate against the septum, to make the diagnosis. In many cases of the obscure type, you are going to have to get in the nose and see the pus coming out of the ostium or see the granulation tissue about the ostium, the dilated vessels or a little polyp hanging out of or adjacent to the ostium. The roentgen ray is not going to help a whole lot, but it does help some.

In radiology I use the Granger position. I think it is the one best all-around position. I supplement it with the Hertz position. The Hertz position was brought out for the sphenoid. If you make an exaggeration of the Hertz position, it will be possible to view all of the ethmoidal cells, the anterior as well as the posterior. When you use the oblique position, it not only shows you the location of the sphenoid and the ethmoids, but shows you the ethmoidal cells adjacent to the optic foramen. If there are eye symptoms, suggesting optic neuritis, there is value in that position.

The rhinologist is not like a surgeon. If a surgeon makes a diagnosis of appendicitis, there is only one thing to do,—take it out. If the rhinologist makes a diagnosis of ethmoiditis, to institute the proper treatment, the degree of pathology is imperative. I classify ethmoiditis as acute and chronic. Under acute, there is the specific and non-specific. The non-specific is further classified into infiltrating, hyperplastic, metaplastic, polypoid degenerative and the mixed, which includes any of the groups. Where you find the metaplastic or degenerative, there is nothing to do except remove it. If the structure anatomically is proved by the roentgen ray as accessible through the nose, an intranasal ethmoidectomy may be done; otherwise an external approach is necessary.

Concerning the conservative treatment, other than what the essayist has said, I believe the best method of local treatment, combined with constitutional measures, consists of ventilation and drainage. If there is a cystic turbinate or an ectatic turbinate, crush it or open it. If the ethmoid itself is ectatic, I open it. I do not say clean it out; open it, drain it. If you find a deviated septum, correct it. That is all conservative treatment.

Where surgery is not indicated at all, I think the one best measure is building up the patient's resistance. By that I utilize, not the stock vaccines or bacteriophage, but an autogenous pathogenic vaccine made according to the routine technic of Solis-Cohen. The patient's blood containing the antibodies is taken and cultures taken from the sinus or the nose proper are grown in it. One or possibly two organisms are isolated, not a group. The other group of organisms have been destroyed or their growth inhibited by the antitoxin in the blood taken from the patient. There is obtained a selective pathogen vaccine which really is of value.

Dr. Homer Dupuy (New Orleans): The ethmoid cells present an anatomic structure which gives them a honey-comb arrangement which makes natural drainage from them a difficult process. Thus a chronic suppuration very often follows an acute ethmoiditis. Radical surgery should not be our first thought. I am in that group who apply conservative measures first. The electric motivated suction apparatus has proved of inestimable value in my practice. The suction to be effective should be used daily for at least a month. Success with such treatment should show diminution in the discharge and relief of pain in the head. Without such results, I then resort to a complete middle turbinectomy. Thus is promoted better drainage and ventilation of the ethmoid cells. Uncovering these structures in itself will render the suction apparatus more effective, and bring about a cure. I agree with the essayist, that the exenteration of the ethmoid cells by radical surgery should be the last resort. The presence of nasal polypi, and a greatly enlarged middle turbinal, is almost infallible evidence of pathological changes in the ethmoid. Add to this, disease within the eye-ball itself, appearing at the same time and on the same side as the ethmoiditis, and now we must throw all conservatism aside. With normal vision threatened, and this is a possibility not so infrequent, radical surgery is certainly indicated.

# THE TREATMENT OF ALLERGY WITH NASAL IONIZATION*

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You can prove anything in medicine! In reading the literature on results of nasal ionization in allergic diseases, there is a preponderance of literature on one side claiming positive cures in a large percentage of cases, and on the other side there are large series of cases reported where the method has been a complete failure.

It is my object to give a clear and complete review of the literature with accurate evaluation of the method.

First, I shall start with a brief description of the instrument and technic. Ionization or iontophoresis, according to Dorland's dictionary, is the introduction, by means of the electric current, of ions of different sorts into the tissues of the body for therapeutic purposes. Whether or not this is correct is a mooted question. Lierle and Sage state that metallic zinc does not penetrate the tissues in the process of ionization, while Wenner states that it not only penetrates the tissues, but that when a rabbit ear was ionized on one side it also "penetrated the opposite un-ionized ear"—some penetration!

The method is not new, but has been repopularized by Dr. Warwick of Fort Worth. All the current that is necessary is a direct galvanic current which may be procured in several ways. The simple and most ideal way is the simple storage battery. Another method is by a wall plate or step-down used in a direct current. There is another type of instrument which contains mica converters, changing the current and reducing it from the alternating to the direct current. The last type of machine is a motor generator type which is the type recommended by Warwick. The type of machine is of little consequence, and results are obtained equally as good with one as the other. This statement is strenuously and vigorously denied by Warwick who states his machine is the only one at all safe to use. Certainly this is too broad a statement to be correct.

## DETAILED TECHNIC

The nasal mucosa is anesthetized with pledgets of cotton, using varying mixtures of anesthetic solutions. The Warwick method uses small cotton strips, which are soaked in the purple electrolite, and packed into the nose. The nose is packed very scrupulously, being careful to pack the area above, around and under the middle turbinate. The nose is packed completely, and at some stage in the packing the long slim electrode, wrapped with cotton, is tightly inserted into the nose; the positive pole of the machine is connected with this electrode. The negative pole is attached under a rubber shield with an elastic band around the forearm. The current is gradually turned on to 10 milliamps and is permitted to flow for ten minutes, giving a dosage of 100 milliamp minutes. The packing is removed, and the other side treated in a similar manner.

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This technic is modified by Cottle, in that instead of packing the nose with cotton a thick tragacanth jelly of 0.5 per cent zinc is used to fill the nasal cavity and serves as an electrolite. This obviates the unpleasant procedure of packing the nose. Cottle recommends 150 milliamp minute treatments.

Still another technic is used by the English who merely insert a firmly fitted, tightly wound electrode into the middle meatus, and ionize the patient for 50 milliamp minutes, using 1 per cent zinc sulphate solution. Two treatments a week apart are given.

When the Burdick people first brought out the Warwick machine they laid great stress on the necessity of the electrodes and solutions being made up of specific amounts of zinc, cadmium and tin. Hurd analyzed the electrodes and found them to contain entirely different amounts from those stated, and also in addition some other heavy metals. Examination of the electrolite showed this to be inaccurate, both as to quantitative and qualitative amounts. No tin was found in the electrolite in either examination, although Warwick states the tin forms stannic acid at the cathode and makes the membrane more tenacious.

### THEORY

As to the theory of the procedure Warwick explains the action on "the basis of the sphenopalatine ganglion, which sends sensory fibers to the tongue and secretory fibers to the sublingual and submaxillary glands through the lingual nerve by way of the chorda tympani, the facial nerve and the large superficial petrosal nerve, all of which area shows a reaction to allergy, whether by inhalation of pollens or by nasopharyngeal regurgitation of protein foods.

"The sphenopalatine ganglion has sympathetic connections with the carotid plexus by way of the vidian nerve and in this way is in intimate connection with the innervation of the bronchioles. It is maintained that it is by way of this latter connection that asthma may result from irritation of the nasal mucosa. The excessive secretion of saliva, lacrimation and itching of the ears and palate which accompany hay fever are probably the result of conveyance of irritation of the nasal mucous membrane through its connection with the sphenopalatine ganglion. Hives are accounted for by way of the communicating fibers between the sphenopalatine ganglion and the superior cervical ganglion, which latter also supplies motor fibers to the bronchioles by way of the vagus. Thus, the primary object of the treatment of such symptoms will be to decrease the sensitivity of the nasal mucous membranes. This is done by ionization." This is quoted from Warwick.

Many writers have doubted the rationale of this theory. In the first place it has been found that the treatment is just as efficacious if the current is never turned on, but the nose is simply packed with the electrolite for ten minutes. In the second place, results identical with ionization have been obtained by various authors using eschoratic solutions, such as trichloracetic acid, chromic acid, phenol and strong silver nitrate. In the third place Chajutin obtains the same results by ionizing the shoulder, using a 2 per cent calcium chloride solution. Vail obtains relief from hay fever by injection of 40 per cent alcohol with 2 per cent procain into the turbinate and septum.

According to Warwick's theory, if all of the effects are explained on the basis of impulses transmitted through the sphenopalatine ganglion it would strike one as being much easier to block the ganglion itself rather than trying to block the individual nerve terminal. The regurgitation of proteins in the nasopharynx is too fantastic to warrant comment.

In practice, the reaction is usually very severe and there is a good bit of edema of the face and eyes with headaches and discomfort for a day or two. The nose is completely blocked for about five days, and there is a dirty gray thick exudative membrane which has been shown to contain broken down epithelial cells, various fibers and blood cells. This sloughs out within the first week, leaving the nose dry and open and very red in appearance. This remains for a variable length of time. None of my cases has remained open over four weeks. In others the relief is only a day or two.

McMahon has shown definite changes in the mucous membranes with permanent scar formation.

### REVIEW OF LITERATURE

In reading the literature, wide variations are found. Alden collects 700 cases with favorable results. Warwick reports 92 per cent cures in a large series of cases (226). Hurd takes the collected cases of the Burdick Company and reports in his paper "70 per cent of patients are symptom-free". He ends up rather lamely with "I am not ready to tabulate my results, as in some cases I have used the method described by Warwick, in others I have applied that method on one side and another technic on the other side, and in others I have used a still different method." Ramirez reports 125 cases, all failures.

A very full questionnaire was sent out to the Jarvis group of fifty otolaryngologists over the country and twenty-three answers were obtained. They only favorable reply was from a group member who sent in cases reported by Dr. Honiss. I had already read Honiss' article wherein he reported twenty-three cases of which six were reported a month, or less than a month, after treatment. When conclusions are drawn less than a month following treatment, certainly I think none of the deductions can be depended upon. Other reports obtained from the Jarvis group showed the same results without using the electric current as when it was turned on. Another interesting fact was obtained concerning Dr. Alden's glowing report. Alden shows by slide that the membrane is not damaged by ionization, also his percentage of cures is very high. Regarding this, one group member stated, "Inasmuch as Dr. Alden has been so enthusiastic about this procedure, one hesitates about accepting any verdict from him that is not cross checked by some other worker."

Some of the responses from the Jarvis group were in rather strong terms, and were interpreted to mean that the members had no intention of trying the technic.

### SUMMARY OF RESULTS

Personally, I used the Warwick machine and technic, also nasal jelly (Cottle), and Franklin's technic of two ionizations of 50 milliamp minutes, a week apart, using 1 per cent zinc sulphate. Some fifteen cases have been treated, of which eight were subjected to the Warwick technic. Of these eight, five were seasonal hay fever patients, and three perennial hay fever patients. All were treated during the period of active symptoms (which Warwick states gives the best results) and the most relief obtained in any case was four weeks. Six patients continued to have symptoms within a week after the reaction of the treatment had worn off. Another patient's symptoms returned in full blast within three weeks, and the longest period of relief was four weeks to the day. The other seven cases were treated by various technics and were all failures.

I had one case with typical hay fever symptoms, which was negative to all skin tests. This patient's nose was cauterized with trichloracetic acid, and complete relief has been experienced for eleven months. There are frequent references in the literature to the fact that relief is more often obtained when skin tests are negative than when tests are positive; that in the so-called hyperesthetic rhinitis much more relief is reported than in true allergic cases with positive allergic tests.

As to the after results, one case ionized showed definite scars in the nasal mucous membranes, and another case showed definite atrophy of all the nasal structures with no relief from the itching, burning, or intermittent blockage. Likewise, I have a definite report of one case of hay fever which was ionized and developed asthma, following the ionization, of a very severe character, which has lasted for two years. This patient never had asthma before. There are references in the literature to ionization having precipitated asthma. It is also difficult to gainsay McMahon's work where definite tissue injury is exhibited.

## CONCLUSION

I wish to state that several of the papers in the literature leave one in doubt as to the authors' opinion of the treatment, and I wish to state fully and frankly that in using the method I not only think it an illogical, irrational treatment, but that I am convinced it is capable of doing, and does definite harm. Since the results are so poor and the likelihood of some harmful effect is so imminent, I think the procedure can only be condemned by the otolaryngologists. The cases which are cured likely never had hay fever in the first place and if they did some milder form of cauterization would give equally as good results without the danger of permanent injury.

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## DISCUSSION

Dr. W. A. Wagner (New Orleans): Electric ionization is an interesting subject, and I have been interested in it for a long time. In 1922, I read an article by A. R. Friel on ionization, in which he related the studies he had made on ionizing middle ears, and particularly otitises that were of the chronic catarrhal type. He went further in the article to describe the technic which he used not only in those instances but also in the treatment of tinnitus aurium. In his text book, 2nd edition, Sturridge Coarther describes the treatment of pyorrhea by ionization; A. Bouchet of Paris, the treatment of endometritis, and Friel describes the treatment of skin diseases, eye diseases as corneal ulcers, vaginitis, rectal fissures. In the bibliography I came across an article by Dr. Stephane Leduc. In looking up the literature, I found that he wrote a textbook in 1908 on ionization and its effect in medical application. He recited the experimental work he did in ionizing the tissues both of the skin and mucous membrances, and it is to Leduc we owe ionic therapy or iontophoresis. He stated in his book, which I still have, that if you ionize the skin or the mucous membrane, using sodium chloride as the electrolyte, at the positive pole there will be developed hydrochloric acid, and at the negative pole there will be produced sodium hydroxid.

Warwick came out with his machine, made by the Burdick Company, a special make of machine, a special kind of solution and a special kind of electrode. The essayist told us about the irregularities in the electrolite and the electrode, as shown by two different investigations regarding the relative amounts of zinc, cadmium and tin.

My work started in 1923. I started ionizing chronic otitis medias of the suppurative type. Included in that same group of cases that I began at that time were some of the sinuses. I ionized antrums and sphenoids that were empyemic, and found that ionizaion did not kill the organisms. I used zinc sulphite 2 per cent, as recommended by Friel of London in his monograph on ionization. It was the first time I came across that electrolite. The other men had recommended sodium chlorid solution.

So I tried zinc sulphate, 2 per cent, and I ionized a few allergic rhinitises at that time (that was as far back as 1923-24) and a number of cases thereafter. I dropped it in about 1928, disgusted with the treatment of otitis media, sinusitis and allergic rhinitis.

Then I began to get interested again when Warwick revived it and recommended a certain type of electrolite and a certain type of electrode, and I began to try ionization again. I tried to procure the special electrode and electrolite, but Burdick Company would not supply me with anything. They would not supply me with the electrodes and electrolite because I had my own ionization outfit made from a "B" battery of a portable radio set and some radio equipment I had procured from one of the radio establishments. With their refusal, I had to continue with the same electrolite I used before.

Warwick states that when using the machine the resistance must be between 2000 and 3000 ohms. I believe that is right. Ohm's law will bear out that fact. If you know the amperage you are going to use, and know the voltage, you can figure the resistance. If you have too much resistance, there is going to be burning of the arm at the negative pole. There is no doubt about that. The burning of the arm, I believe, is the result of both electric current plus the sodium hydroxid, which is precipitated on the skin by the electric contact. The positive pole, which is placed in the nose, is going to precipitate hydrochloric acid. There is no doubt about that. That has been proved. Whether or not zinc penetrates the tissue is a debatable question. I believe it is precipitated and histocytes carry it into the deeper tissues. McMahon (and I have seen his specimens) showed that the histocytes were carrying it into the tunica propria of the mucosa. I am rather certain it does not penetrate the mucosa at all, but is deposited as a layer on the surface and is carried on by the histocytes.

The question is, why should a company tell you to try to use this machine in such a way, and the doctor tell you it must be done with a special electrolite and a special electrode. That is questionable in my mind. I do not believe you need that certain amount of cadmium and that certain amount of tin. I think the zinc sulphate will do as much good. The question is, how much damage is done?

I have looked at a lot of these specimens and have analyzed quite a number. I have not only done that on some of my own cases, but I have had the privilege of seeing the work done up at St. Louis under Dr. Dean's staff, McMahon and Alden, whom the essayist mentioned, and a few others. I saw those specimens, and when you see the amount of inflammatory reaction that follows ionization it is identically the same thing after using trichloracetic acid in cauterizing the turbinates. There is definite destructive changes of the epithelium with marked infiltration of tunica, including lymphoid cells, histocytes, polyblasts and neutrophils, and the amount of fibroblastic infiltration that follows in the polyblastic formation is enormous.

I have seen a number of my patients who were ionized ten years back, or a little more than that, and they do not look so good to me. My results have not been good, and therefore I have sought other methods of treatment.

In the treatment of allergy one must not deviate from the etiology which is constitutional. Therefore treatment should be constitutional. Any local treatment as ionization with its destruction of the epithelium and its abnormal changes produced in the tunica associated with the subsequent altered physiology of the nose and its possible effect on the adjacent sinuses is not in my judgment sound therapy based upon etiology. Therefore I have discontinued iontophoresis again for a more rational form of therapy.

Dr. S. M. Blackshear (New Orleans): Although Dr. Womack asked me to discuss this paper I feel a hesitancy in doing so as it does not look proper to criticize a method without first having tried it. I have never tried it for the reason that it does not seem practical. It seems to me that it is treating a local manifestation of a systemic disease, or like treating diphtheria with gargles and sprays.

I saw two patients who had had this method used on them and they were having so much discomfort from their noses that they came to me for an examination. In both cases I was convinced that considerable damage had been done to the noses.

However, I am glad to hear Dr. Womack handle the situation in such a frank manner as we are all searching for the truth, and I believe he is working along the right lines when he tells it as he sees it.

Dr. David R. Womack (In conclusion): I did not take this subject up with any positive ideas of the method. I have a machine in the office, and wish it would cure hay fever. I would be glad to use it. The machine is of no value to me, as I do not think I shall use it again, after looking at some of the noses on which I used it. I think the method is very definitely dying out. Probably next year it will be of no value at all.

Dr. Wagner said he used it a year ago, and dropped it. I think all the rest of us will drop it in time. Dr. Wagner brought up the question of resistance. I did not go into that because I thought it was too long a presentation already. Warwick lays great stress on the resistance. It does not mean a thing. When a nose is packed with an electrolite, and an electrode put in it, the current is not going to hunt around for a place to go through, but the point that makes the best contact will serve as the conducting medium. Therefore, if you have one good contact point in the nose the rest of the area may be very poorly packed and yet give a reading of low resistance.

The Burdick man helped me ionize some of these cases, and on one of them I packed the nose very carefully and very tightly, even hurting the patient in doing so. The resistance was so great as to be beyond normal limits for use. No matter how tight the arm band (negative electrode) was, on squeezing it some more, the resistance fell well within the normal limits. I repeated this several times with other cases, and it was not a matter of a dry electrode or a loose one.

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# MELANOSARCOMA OF THE EYE*

## MALIGNANT MELANOMA

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It has long been, and still is, a difficult matter to arrive at any definite conclusions about melanotic sarcoma of the eye as regards the degree of malignancy and consequently the prognosis, because of the lack of sufficient statistical data. This is the result of several causes:

1. The comparative infrequency of the disease.
2. The lack of confirmatory microscopic diagnosis.
3. The difficulty of keeping the cases under observation with follow up history long enough for the cases to be of any historical value.

I am using the terms melanotic sarcoma and malignant melanoma interchangeably, although the latter, malignant melanoma, is the term preferred by most modern authorities.

Terry and Johns[1] state that the average incidence of malignant melanoma is five out of ten thousand patients who visit eye clinics, and conclude, "It is, therefore, impossible for any one observer to collect and study in a uniform and detailed manner a large number of cases."

Dr. Laura Lane, of the Rackham Ophthalmic Cancer Research, University of Michigan, Ann Arbor, who is making a thorough and complete survey of the subject, says in a personal communication, "I have gone over thousands of records in various institutions in different parts of the country and I have not succeeded in getting a thousand cases of sarcoma and melanomascarcoma of the eye which are complete with microscopic preparations and follow up of the patient.

"When one considers that the average number of malignant tumors of all kinds in the eye seen in any large eye clinic in the United States does not exceed 25 per year, one is simply appalled by the meagerness of the records."

I think the statement of Dr. Lane bears out our common experience, that rarely is a provisional diagnosis of melanosacroma substantiated by microscopic sections. It is also our common experience, I think, that such cases are generally lost sight of, no follow up history is obtainable and even the proved cases are valueless for any conclusions as to the end results regarding recurrences, either local or metastatic, or the time of such recurrences. It is generally considered that after five years of freedom there is little danger of recurrence. However, recurrences have been reported after as long an interval as twenty-four years.

Perhaps the late recurrences should be considered as new growths rather than recurrences from the original focus.

The term malignant melanoma or melanotic sarcoma has always been regarded with a high degree of apprehension and dread regardless of the type of neoplasm to which it might have been applied. There has long been a desire for more discriminating use of the term, resulting in various more or less unsatisfactory attempts at classification.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

In this paper I shall attempt to review and present in order what seems to me to be the latest and best thought on the subject, realizing of course that the last word has not been said.

In 1931, Major Callender,[2] Curator of the Army Medical Museum at Washington, presented at the meeting of the American Academy of Ophthalmology and Otolaryngology a most excellent paper giving a detailed study of 111 cases from material, largely, if not entirely, furnished by members of the Academy. This paper, although it deals with only 11 cases, is most instructive as the cases were carefully followed, and gives the histologic classification, the age of the patient, the location, the amount of pigment, the status of the patient at the end of certain definite periods of time and the deaths from tumor and otherwise.

An inference is drawn as to the relative degree of malignancy of the different histologic classifications. The Callender classification, for which he says no precedent is found, seems the most feasible of any yet offered and will be briefly reviewed as follows:

1. Spindle cell type, most frequent, forming the entire mass of some tumors and in all mixed tumors, and consisting of sheets, whorls, and other irregular arrangement of spindle cells with long, oval nuclei. This class he subdivides into sub-type A, and sub-type B.

2. Epithelioid type, consisting of polygonal cells, usually of relatively large size, large nuclei varying in amount of pigment, generally deeply pigmented.

3. Fascicular type, with elongated cells sometimes forming fiber-like structures; the majority of such cells are arranged in columns or fasciculi and such tumors are often called leukosarcoma.

4. Mixed cell type, the most common melanotic tumor of the eye, consisting of irregular mixtures of spindle and epithelioid type, with occasional fascicular areas. They are generally heavily pigmented.

Such a classification, even if exact and final has no great practical importance or even interest for any except the pathologist and technician, unless some reliable inference can be drawn therefrom in reference to the varying degrees of malignancy of the different histologic groups. Callender thinks this can be done, and grades them in order of malignancy as follows: (1) Epithelioid; (2) fascicular; (3) spindle cell—A. and B. The mixed cell varies greatly. The epithelioid predominates in most metastases.

In discussing the paper Dr. Jonas Friedenwald, while referring to a certain classification of his own, praised Dr. Callender's classification very highly. In a personal communication he states that he still approves and accepts Dr. Callender's classification and conclusions.

Callender and Wilder,[3] in 1930, submitted a further study of a total of 273 cases from the same source, the Registry of Ophthalmic Pathology of the Army Medical Museum, Washington, their attempt being to substantiate Callender's original conclusion by a study of silver staining fibers in the reticulum.

Terry and Johns[1] give a careful detailed and statistical study of 94 cases from the Massachusetts Eye and Ear Infirmary, together with an exhaustive bibliography using Callender's classification. They conclude, that "all cases falling into spindle types A and B were considered to have a good prognosis, and all others were considered to have a bad prognosis."

These statistical studies of 273 cases from the Registry of Pathology at Washington and ninety-four cases from Boston seem to justify the following conclusions: (a) approximately 94 per cent of melanosarcomata of the eye occur in the uvea including the choroid, ciliary body, and iris; 6 per cent at the limbus; (b) they may and do occur wherever pigment is normally present in the tissues which accounts for the extra-ocular, or epibulbar group at the limbus; (c) approximately 13 per cent were spindle cell A with a tumor death rate of nothing; 22 per cent were spindle cell B, with a death rate of 10 per cent; 8 per cent were epithelioid with a death rate of 25 per cent; 50 per cent were mixed cell type with a death rate of 35 per cent.

Of course, these figures cannot be exact because they were not studied long enough for that purpose, and different series of cases, covering different periods of time might and probably would give various percentages.

(d) The formation of pigment in the tumors is unrelated to the normal pigment in the eyes; blondes and brunettes showing about the same composition; (e) the degree of pigmentation does not indicate the degree of malignancy and therefore is no guide to prognosis; (f) contrary to what is perhaps the general belief, recurrences in the orbit are not common. Metastases, however, are more or less frequent, the liver being the location perhaps more often than all other organs combined. The channels of transmission are generally the blood vessels, although the lymph stream may be the means in some cases; (g) as would be expected the per cent of metastatic recurrence corresponds closely to the death rate. Spindle A, 0 per cent; spindle B, 7 per cent; fascicular 21 per cent; epithelioid 25 per cent, and mixed cell 37 per cent.

Callender and Wilder conclude that the original classification by cell type still holds, but a more accurate prognosis is made possible by additional classification according to fiber content, demonstrated by a certain technic of silver staining, and they work out a percentage table both as to metastatic recurrence, and death rate accordingly.

These conclusions are not final by any means but they do constitute a long step forward in the long struggle to clear away some of the fog that has obscured this whole subject, and are probably the most reliable data we have to date.

In this, as in all other evolutionary movements in medicine, it will remain for other specal workers to advance either by substantiating these conclusions or by substituting for them other proved facts.

An interesting personal communication from Dr. Lane under date March 30 states: "The whole subject of the cell typing in the melanosarcomas of the eye I do not believe is yet final. When one gets a large series of 500 to 1000 cases and notes the many times the pathologist has made the remark, 'look out for an early metastasis', and then finds the patient living ten years or more with no signs of recurrence or metastasis, one begins to doubt the prognostic value of these various cell groupings, as to prognosis. It seems that there are other very important biochemical or metabolic processes going on within the body of the cancer patient which influence the virulency, so to speak, of their tumor.

"I think Callender's classification has some good points but after looking over his collection and more than 500 other case specimens, a large number of which are now followed up completely, I do not feel that the classification holds entirely, by any means."

All of which goes to show, as stated before, that the last word has not been spoken.

I desire to present a typical case illustrative of the preceding discussion, in which there has been microscopic confirmation of the clinical diagnosis, and in which a periodic follow up has been made for nearly five years, four years and eight months, to be exact.

### CASE REPORT

D. H., colored female, aged 44 years, applied to me in August, 1931, for examination and treatment of her right eye. Examination revealed a large cauliflower mass, approximately one-fourth the volume of the normal globe, which had recently ruptured and was exuding a sanguineous fluid. It involved the inner half of the cornea, but it was impossible to determine whether it originated from, or had broken through the cornea. The more or less indefinite history was that for a year or more the mass had been increasing in size and had recently ruptured. There was no pain, no palpable tension and no other evidence of intraocular growth. The mass was so large that it protruded between the margins of the closed lids. The significant statement was made that some sort of dark spot on the eye had been noticeable since infancy. It was evidently one of the so-called congenital benign pigment spots that had taken on malignant tendency in adult life. There was no history of provocative trauma.

The eye was enucleated on August 13, 1931; the recovery from the operation was uneventful, but an interesting event connected therewith supervened. On March 19, 1932, seven months after the operation, examination revealed a pedunculated pigmented mass about the size of an ordinary pea attached to the scar line in the conjunctiva at the apex of the orbit. There did not appear to be any evidences of activity elsewhere in the orbit.

This was demonstrated at a meeting of the Shreveport Eye, Ear, Nose, and Throat Club, and the members present were asked to make a diagnosis of the nature of the growth. Most of them inclined to the opinion that it was a recurrence of the melanoma. The tissue was snipped off and sent to the laboratory for examination.

The enucleated eye was sent to the Army Medical Museum at Washington for examination and the following report returned:

"Fungating melanotic sarcoma of epithelioid cell type arises at the limbus. There is some distortion of the cornea and some vascularization of the outer layers, with a few mononuclears in the lining of the cornea just beneath the pedicle. Posterior synechia near the pupillary area. Retinal vessels are somewhat engorged. Central vein seems dilated, otherwise the interior of the eye is essentially normal."

The small polypoid mass on the scar in the orbit referred to above was sent to the same laboratory and the following report returned: "The tissue is inflamed granulation tissue in which no tumor cells could be found."

### DISCUSSION

A careful follow up of this patient has been instituted and at present, four years and eight months, there are no evidences of recurrence locally, or metastasis of the growth to other organs. There are several interesting features connected with the case.

1. The first is that she is practically a full blooded negro, the occurrence of malignant melanoma of the eye being rare in this race, a fact which has been commented on by several authorities, who have had occasion to study the case.

2. Type: the growth was of the epithelioid class, which is considered one of the more malignant kind.

3. Location: the tumor arose from the limbus, one of the rather rare locations. Callender reports an incidence of 6 per cent in this region. The mass was entirely outside the globe, and yet there has been no orbital recurrence thus far.

One of the slides which I have shows very beautifully the origin of the growth.

4. Long after enucleation, I made the interesting discovery that three months previous to that time an application of radium was made, needles being inserted in the mass, which at that time was described as being the size of a buckshot. Evidently there was a very rapid growth of the neoplasm following the radium treatment

I have three slides which I would like to present. The first, of the enucleated eye and tumor, shows the relative size of each. The second is a section of the eye and tumor. The third consists of photographs of the patient taken in December, 1935, both with and without her prosthesis.

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### DISCUSSION

Dr. Noel T. Simmonds (Alexandria): Dr. Scales has stated that this is a condition which occurs in only five out of ten thousand cases. That, of course, applies to clinical cases rather than cases seen in private practice where refractions run up perhaps a good bit higher.

My experience is limited to the time when I was at Wills Hospital. We had about twelve or fifteen cases and did not have opportunity to follow them up. That is one of the difficulties Dr. Scales mentioned. Since that time I have seen only one case, and have not been able to follow that, so I cannot contribute anything original to the paper.

The important feature, as I see it, is the prognostic value you gain from that information. Some of us have seen cases of malignancy in individuals with only one eye. Sometimes this is accessible in episclera, at the limbus, or in the iris. Once in a while these patients will say—"I would rather be dead than blind." If we can do a biopsy and give a more definite prognosis than we can now, he can gamble with his life knowing what the odds are. The same thing applies to individuals having two eyes. If you can tell him what the possibilities are of enucleating the tumor and determining its type and degree of malignancy, he can definitely decide whether he would rather be one-eyed, or gamble and keep two eyes.

These remarks are based on the hope that Dr. Callender's investigations will be corroborated and generally accepted. Drs. Terry and Johns, I believe, have accepted them very well. They have been investigating, and find their results check very nicely with Major Callender's. Dr. Lane, on the other hand, is rather skeptical and lacks enthusiasm.

Dr. W. R. Buffington (New Orleans): I wish to thank Dr. Scales for bringing to our attention the subject of melanosarcoma or malignant melanoma of the eye. Primarily, these tumors arise from some part of the uveal tract: the iris, the ciliary body or the choroid. They may become extra-ocular, as in the case reported by Dr. Scales, but a large majority of them are diagnosed while the neoplasm is still intra-ocular.

Dr. Scales has quoted extensively from Callender and Wilder, Terry and Johns, giving the degree of malignancy of the different types. I must agree with Dr. Scales that the final word has not been said relative to malignancy. In all types early enucleation is the surest prevention of metastasis. A non-fluctuating, non-transilluminating detachment of the retina must always be regarded as due to some neoplasm of the choroid. One must not hesitate when such a condition is present to enucleate the affected eye.

A sarcoma occurring in some other organ fifteen to twenty-five years after the removal of an eye must not be regarded as a metastasis but as a primary tumor. I am reporting four cases of melanosarcoma of the eye, all of more than three years' duration, with no recurrence within the orbit or metastasis in any other organ.

In the first case, Mrs. B., aged 53, the eye was enucleated in February, 1925, because of a large circumscribed non-fluctuating detachment just behind the ciliary body. The eye was sectioned and examined after enucleation by Dr. William H. Seemann, who reported mixed cell, round spindle cell type of melanosarcoma of the choroid. The patient was last seen in April, 1936. There was no recurrence nor metastasis.

Case 2. E. X., aged 78, was first seen in March, 1933, because of spontaneous rupture of the staphylomatous cornea on the previous night. The eye had been blind for twenty years as a result of injury and infection but had been quiet and painless until 1931 when it became irritable. Enucleation was done in March, 1933. The eye was examined by Dr. Lawson, who reported a non-pigmented sarcoma of the choroid. No classification as to cell type was given. There has been no recurrence, nor metastasis up to the present time.

Case 3. S. M., was first seen in May, 1934, because of severe pain and loss of vision in the left eye of three months' duration. The symptoms were due to acute congestive glaucoma with a tension of eighty milligrams. The tension was not relieved by miotics, scleral iridectomy nor trephine. The eye was finally enucleated. Pathological report by Dr. Harvey Lamb of St. Louis, Mo., was: Spindle cell melanosarcoma of the choroid.

Case 4. Mr. N., aged 53, had the eye enucleated in April, 1934, because of non-fluctuating detachment of the retina above the disc extending to the macula which caused loss of vision. The pathologist reported melanosarcoma. There has been no recurrence nor metastasis up to the present time.

There have been no recurrences, from two to ten years in any of my cases, although the first case represents a most malignant type according to Callender. Cases 2 and 3 call your attention to the fact that it is essential to examine sections of all blind eyes removed. In neither case was malignancy suspected until the eyes had been removed and histologically examined.

Dr. Isidore Cohn (New Orleans): I am not an oculist. I do not have to say that, I suppose. Since none of these patients have shown evidence of metastasis, I want to show you (slide) a case of melanoma in a man 70 years of age, referred to me six years ago by Dr. H. N. Blum, of New Orleans. By the time he came, of course there was no question of an enucleation; it was a question of an exenteration. That is exactly what I did. Within a few months there was metastasis on his chest wall, and here is another metastasis. This is a picture of the original growth and metastasis in the chest wall, which looked exactly like that.

The interesting thing is that the original specimen showed so little or practically no evidence of melanin that the question of glioma came up in connection with this. Dr. Cummings called attention to the fact, and so did Dr. Ewing, that they do not actually have to have melanin in them, that the character of the tissue is sufficient. The metastasis shows exactly the same type of lesion.

Dr. H. G. F. Edwards (Shreveport): Dr. Scales has mentioned that in one case radium needles had been inserted. This is not a reflection on radium but rather on the man who employs the radium. Melanoma is the most resistant tumor; melanoma of the eye, especially, is a hopeless condition unless an exenteration is done, as Dr. Scales has done.

Last year I had an eye man refer a patient to me for x-ray or radium treatment in whom he had removed a small, about four millimeter in size, pigmented tumor from the corneoconjunctival border. Dr. Matthews made a study of the section. This was a melanoma. I advised the doctor it was useless to use radiation and urged him to do an exenteration. That has not been done.

The success of cure of any malignant disease rests upon getting the patient before the disease has spread to remote parts. After this has occurred, any treatment will be futile. You may get palliation. I think Dr. Scales' patient, and Dr Scales too, are to be congratulated on the fact that he did a complete operation, an exenteration, and that he must have gotten the tumor before it had already spread.

I have treated a great many melanomas and every one of them have died once the disease clinically appears to have spread to remote parts. I believe if melanoma is on the foot or any portion of the cutaneous envelope, and it is possible, radical dissection should be done. If the melanoma is on the hand, Dr. Pack will do a radical in the axilla. If on the foot or on the leg radical inguinal dissection should be done. In this way a higher percentage of cures may be secured. Certainly radiation has no part in the treatment of melanoma.

Dr. John L. Scales (Shreveport): In reference to the matter of statistical study, one swallow does not make a summer. If one case does not prove anything, Dr. Buffington's four cases do not prove anything any more than my one. Forty might prove something; 400 might prove considerable, and 4000 might lead to some definite conclusion. In the first place, the studies I have given have been very recent, and they have been the only ones I have been able to find anywhere, of this kind, in the literature. You would be amazed at the paucity of information of that kind in all the standard textbooks you look through.

It appears very evident from what Dr. Edwards and Dr. Cohn have said that we still regard melanotic sarcoma with a great deal of dread. If these statistics turn out to be not supposition but facts; if there is something definitely conclusive about them, it certainly does give us something definite and worth while to be able to relieve some of the dread connected with these things by knowing that certain types are not as malignant and dangerous as they might have been thought to be, that is, provided these statistics are substantiated. In many of these cases the pathologist says, "Look out for early fatal termination," and the patient lives ten, twenty or thirty years. If you prove there is nothing to the malignancy idea about the melanosarcoma, then we are infinitely better off. So either way you take it, if proved or disproved, it seems to me there is something very definite to be gained.

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## THE STATE MEETING

Elsewhere in the Journal will be found a more detailed account of the state meeting which will be held in Monroe April 26-28, than can be given in this column. However, it should not be amiss to point out to the members of the State Society that in the past when the state meetings were held in Monroe always they have been extremely successful. The scientific program has always been decidedly superior and the social activities have been occasions of merriment, cheer and good fellowship. Knowing the Chairmen of the various committees that are arranging for the activities in Monroe and knowing the past record of that city, it is only fair to surmise that this approaching meeting will be one of the best of the state meetings.

In addition to the speakers from the state, five distinguished guests from out of the state will appear on the program of five different sections. They have been wisely selected. A real treat will be the annual oration to be delivered by Dr. Morris Fishbein, editor of the Journal of the American Medical Association. Dr. Fishbein has intimate knowledge of the problems of medicine, his ready wit and his flowing expression need no introduction to most of the members of the State Society.

It is important for every member of the Society to be present not only because of the profit he or she can reap from the papers, essays and scientific exhibits but also from the information about new drugs, new remedies, new equipment and new books which is available in the commercial exhibit. Lastly, organized medicine should make a good showing numerically at their regular yearly meetings. It is necessary for us to show the community as a whole that we are cohesive and cooperative. Furthermore, it is through these meetings that organized medicine speaks for itself and for its individual members.

## THE GRADUATE MEDICAL ASSEMBLY

In retrospect the first, of what is hoped will be a yearly series of such graduate medical assemblies, was eminently a success. For the most part invited guests did their share splendidly. Their papers were practical, scientific and instructive. The men who attended, and there were over 400 registered practicing physicians, as well as 82 interns and 139 Senior students who came as invited guests to the meetings, all these must have derived great benefit from hearing what the men of national reputation had to say on their particular subjects.

It would be unfair and unjust to the essayists to point out or select any one of the group as being particularly outstanding in his method of presentation of his subject and in the quality of his talk. Nearly all of them measured up or exceeded the anticipated standards. It was extremely good of two of the essayists to wait over until the last night to speak to the members of the Orleans Parish Medical Society who attended the meeting in as large numbers as have ever attended an Orleans Parish Society gathering. The whole-hearted thanks of the local organization, and many of the visitors who came to the Parish meeting, should go to these men.

In addition to the morning sessions, the luncheon round table discussions and the afternoon and night sessions there was time for play. Invited guests were extensively entertained, and entertainments were provided also for the visitors. Altogether it can be said unqualifiedly that the meeting was a success, scientifically, socially and financially.

## PNEUMOCOCCUS PNEUMONIA

Pneumococcus pneumonia is one of the captains of the battalions of death, to paraphrase Osler. Of all the acute infectious diseases pneumonia is responsible for more deaths between puberty and old age than any other disease in these United States. The disease strikes unexpectedly and with virulence.

Pneumonia due to the pneumococcus has been extensively studied in the last three decades and the result of these studies has been the development of a method of treatment which is satisfactory in a considerable number of cases. This method of treatment with antiserum is based largely on the use of a specific substance which is antagonistic to certain types only of the pneumococcus. It is rather unfortunate that medical men have felt it necessary always to type the sputum before administering the serum which is of value in most cases of pneumonia. Serum has been withheld from innumerable patients because of inability to get the sputum for typing or because of necessary delay in the laboratory. With the introduction of the Neufeld method of typing, the causative organism can be identified in about half an hour. It has been found that if no sputum is brought up that relative accurate typing can be brought about, according to a bulletin issued by the Advisory Committee on Pneumonia Control of the New York State Department of Health, by swabbing the back of the throat during the act of coughing. This method is not entirely accurate but at least it is better than waiting passively until eventually the patient will cough up sputum, or never will do so.

The general care of the patient is of extreme importance. Various symptoms may be met by appropriate measures. However, it is the specific treatment that is of primary importance. The effectiveness of type I antipneumococcus serum is well known. The efficacy of type II serum is not quite as generally well appreciated nor is it known widely that for types V, VII and VIII and a few of the other higher types serum likewise is equally efficacious. At the present time types I and II may be given in combination and recently there has been put on the market polyvalent serum which contains types I, II, V and VII. These four types represent slightly over 60 per cent of all cases of pneumococcus pneumonia. Therefore, and this is to be accentuated and stressed, if it is impossible to have the sputum typed, the wisest and best procedure is to give the polyvalent serum knowing that it will be effective in nearly two-thirds of all the different types of pneumonia. The serum should be administered early, and this is another reason for not brooking delay if the type of pneumococcus cannot be promptly determined. One hundred thousand units should be administered almost immediately; give 50,000 units at once and follow in from four to six hours with 50,000 more units, taking the precaution to give half an hour before the administration of the first dose 1 c.c. of the serum diluted with 10 c.c. of sterile salt solution. If the anticipated favorable result does not promptly occur, repeat in 12 hours 50,000 units and again repeat within the next 24 hours. After 200,000 to 250,000 units have been given and have not produced therapeutic results there is no benefit in continuing with the anti-serum.

Although serum reactions may be obviated by determining if the patient is sensitive to serum by the intracutaneous or the ocular test and then desensitized, such reactions are quite unusual. The part of safety, of course, is to test the patient for sensitivity and even if non-sensitive to give a small dose, 1 c.c., of serum and then wait for half an hour. Always it is advisable to have at hand a hypodermic syringe containing adrenalin 1 c.c. of 1-1000 solution.

If an acute anaphylactic reaction occurs administer adrenalin immediately and at once. Do not worry about late specific reactions, such as the thermal reactions with high fever occurring one-half to one hour after giving serum or the delayed serum reaction with urticaria coming on five to seven days after the first injection.

Other methods of treatment of pneumonia such as with vaccines, diathermy or pneumothorax are worthy of serious study but have not been placed on the same firm basis as serum treatment which has been extensively employed in all of the large medical centers where pneumonia is rife. With this method of handling the patient the death rate has been materially diminished. If serum were employed extensively throughout the country by the general practitioners undoubtedly pneumonia would be demoted to the rank of a sergeant or even a corporal in the battalions of death.

# Tribute to the Doctors by the Woman's Auxiliary of the Louisiana State Medical Society

## THE PRESIDENT

It is my pleasure as President of the Auxiliary again to ask the Auxiliary organizations to have March 30 as the meeting date for their "Doctor's Day" celebration. Last year this was celebrated throughout the State very enthusiastically, and the different organizations expressed great pleasure in doing so.

There is nothing dearer to the hearts of anyone than the place occupied by their family physician, and there never was anyone in the eyes of the doctors' wives like their doctor. The object of the auxiliaries, primarily, is to promote the interest of their doctor associates either in organization or individually.

Our message is to the one who suffers the cold, or the heat, or the inclement weather without flinching, answering the call of someone who is suffering the penalties of being sick. It is he who gets up from his bed at all hours of the night without complaint; it is he who takes criticism sometime unjustly given at the hands of people who have not been able to win their battles in life; it is he who never thinks of reward in a financial way; it is he who forgets the needs and requirements of his family; it is he who is willing to make all sacrifices to promote the interest of the sick and the betterment of the profession. I could write a great deal more in my own words, but I prefer to present an article, expressed by another:

## "YOUR PHYSICIAN"

"Nothing can take his place—not priest, nor minister nor all the clinics that science can provide. There is a rapport and a confidence between him and his patient which has been known to accomplish miracles, and to restore to the breasts of mothers babies about to die, and to the arms of lovers, beloved turned back from death. For there's something about the very presence of the family doctor that casts out fear, melts apprehension, breaks down suspense, performs the simplest miracle of faith.

"We know how hard the life is that he's chosen. We know that he's abused, imposed upon, worn; that his days are not his own, and his nights are snatched and torn. And, we wonder, where are his rewards? What compensation is his?

"Oh, I think he is greatly repaid; greatly to be envied. His rewards are kingly prizes. The prize of welcome. That's a great reward. To have one's presence a blessing. To know that the mere sight of you brings heart ease; stirs the warm pulse, brightens the fading eye. The prize of conquest. All men like that. Winning against odds. To stay a fever, energize a pulse; throw breastworks against the advance of disease. Here, indeed, are paths of glory that do not lead to the grave but away from it. I cannot think of greater conquest.

"The prize of confidence. That's a proud possession. Some priests know it; some ministers; and friends, if they're time tried. But the family doctor is the final confessional, a refuge not only for repentant hearts, but sick and craven hearts as well. The prize of human wisdom—that deep knowledge that comes from being continually exposed to the pitiful frailties of mankind. You do not deceive the family doctor; you do not attempt to. But, knowing you, he is still compassionate; for he has learned to expect little of greatness in his fellow-man.

"Above all, I think I envy him his prize of selflessness. He is free, for he has already given up his life, so has nothing left to fetter him. There is much talk of state control of medicine; and legislation dips its partial fingers into the sterile waters of our doctors, seeking to arbitrate over their mission of mercy. I dare say there are certain restricted fields of medicine in whose confines the legislative hand could work productively.

"But the ineffable value of the human touch in medicine is something that transcends all legislation. What legislation—indeed, what politics, what state control or organized social program—can hope to substitute that human bond that exists between the family doctor and his patient?"

Florence Fisher Parry

I trust that every auxiliary will promote this day and make it better than last year if possible, thereby enhancing good feeling among the doctors' wives as well as the doctors themselves.

Mrs. James Byron Vaughan, President.
Woman's Auxiliary.

## OUACHITA PARISH

There are men and classes of men that stand above the common herd: the soldier, the sailor, and the shepherd not infrequently; the artist rarely; rarer still, the clergyman; the physician almost as a rule. He is the flower of our civilization, (such as it is) and when that stage of man is done with, and only to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race. He brings air and cheer into the sick room, and often enough, though not so often as he wishes, brings healing.

It is fitting that we pause today to honor "our doctors" who have cleared some part of the way.

Mrs. Joseph P. Brown, President.

## ORLEANS PARISH

I give you, ladies and gentlemen, the guide and guardian of your daily living—the doctor! The true physician has earned the respect of the world. He has attained this record because he has exhibited those traits of human character which constitute the warp and woof of noble living. He has never shirked his tremendous responsibilities. Night or day, come rain or sunshine, he heeds the call of the afflicted. When you consider the marvelous achievements of the surgeon, one may truly believe that his hands have divine guidance. To realize the dangers to which the doctor is subjected and to appreciate the sacrifices he has made in the cause of science, is to accord him the highest honors of the bravest of the brave.

Mrs. W. P. Gardiner, President.

## CADDO PARISH

What greater evidence of our esteem could there be than the mere existence of the Woman's Auxiliary to the Shreveport Medical Society? This is a group of women held together simply because we believe in the dreams of our husbands, the most courageous dream, we believe, that it has ever been given to the high heart of man to pursue.

Mrs. Robert T. Lucas, President.

## CLAIBORNE PARISH

Once more we pay tribute to the doctors of the nation. Until March 30, 1936, doctors were merely men among men. Now they have a day set aside each year in their honor. It recognizes their ever untiring efforts as servants to humanity. They are with us when we enter the world and stay with us until we depart. Many a life has been saved by the miraculous operations performed by them. Yet, the doctor received no recognition as a hero. Had he flagged a train as it approached a washed out bridge or flown the Atlantic as so many aviators have done, they would have space in red letters on the calendars of the nation. But the doctor, doing day and night service, no Sundays, or holidays; saving lives, sharing the heartaches of the widowed mother, the father, the orphaned children, and bearing the anxiety of lives depending on their ability—he was still just a doctor.

The life of the doctor is best illustrated in the beautiful story Irvin S. Cobb wrote some years ago under the caption "It Might Happen Again." It told of an old Kentucky doctor, of how he had faithfully served the community and how he had grown old and feeble in the service of humanity, and had saved nothing. Those who were too poor he did not expect to pay him, and those who were able to pay, he thought, would do so in their own good time—but few of them did. Came a time when he had to move from the office on the main street into dingy little rooms with the entrance from an alley. Beside the door he drove a stake into the ground with a board nailed on it bearing the simple legend: "Dr. Walker's Office Upstairs." His family had gone, he lived there alone. One morning some patients knocked on his door. There was no response, and they pushed it open and walked in . . .

Irvin Cobb described how the village folks put him away in the church yard. When the services were completed, and they were standing around talking about how kind and good and helpful he had been, some one remarked that they ought to erect a simple, inexpensive marker in his memory. Hearing this the village wag slipped away, hurried down to the little side entrance to the doctor's office, pulled up the sign, brought it back and placed it reverently at one end of the mound of fresh earth: "Dr. Walker's Office Upstairs."

The Woman's Auxiliary to the Claiborne Parish Medical Society extends their heartiest wishes to each and every doctor and when their earthly office is closed, may each one share an "Office Upstairs."

Mrs. H. R. Marlatt, President.

## CALCASIEU PARISH

To us of the Calcasieu Medical Auxiliary, as it should be to all people, the day of March 30 will henceforth rank with the most important of those days set aside by grateful people in celebration of important dates, events, heroes and public benefactors.

We proclaim with parades, confetti, fire crackers, feasts and holidays all those people of some importance who have flown the oceans, won battles, discovered ice-covered continents, or written books. In no manner have we ever been allowed to praise, honor, or in any way, exploit those great public servitors, those heroic, unselfish workers for all humanity, the doctors. Such procedure has been both unethical and poor taste. Even that other similar profession, the law, gets full benefit of praise through the press information on cases and trials. But the medical profession has served its time at bedsides, in hospitals, in laboratories with no press bulletins given to a world that will, in the end, benefit most by this quiet service.

It is altogether fitting and proper, if we may borrow words from Lincoln, that we, who know best, should thus celebrate and honor all the unsung heroes in medicine with a special day, arbitrarily set aside for them. War heroes belong to their respective nations; discoverers and explorers are definitely serving one country; many important men who become famous have served only themselves. But a doctor, however limited in his territory, however little known by the many, has no country, no nation, no creed, no specialized group to whom he gives. He gives to the world, not only his world of his day and age but that world that is to come. He serves all living humanity and all humanity yet to come long after he himself has died.

Every item that a doctor adds to the sum total of human knowledge belongs immediately to the people and to the future. Every bit of service of healing that he renders is no part of himself, but is for the use of all men. Every call he takes, every operation he performs, every emergency he answers, every hour he gives to a test tube, is never at any time his own. It belongs to the person immediately served, or to the persons yet to be served by his work and knowledge. And yet, for such people it has been all important that their light be hidden under the proverbial bushel or, in this case, in their doctor's bag. The public must not know about its benefactors; none of these fighters must in any way be mentioned for praise. Such an attitude is, on the face of it, somehow unfair.

Therefore, we of the Calcasieu Medical Auxiliary wish to add our hearty thanks for the opportunity of March 30, an opportunity given us to give real honor where real honor has long been due, to the world's greatest helpers—the doctors.

Mrs. L. Z. Kushner, President.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

## J. T. NIX CLINIC

New Orleans

At the meeting in March, Alfred E. Smith, D.D.S. presented the following paper:

### PERIODONTOCLASIA

Periodontoclasia usually presents itself in two forms. One may be described where there is recession of the gums unaccompanied by the symptoms of inflammation; the second where symptoms of inflammation are more or less marked.

There are several factors regarding the cause of the first type. Among these may be considered malocclusion of the teeth and digestive disturbances. Direction of the line of force resulting from the contact of the teeth during occlusion or mandibular movements, is, or tends to be productive of abnormality in the investment tissues supporting the teeth. The correction of occlusion as well as circulatory stimulation are usually sufficient to correct such conditions.

In the inflammatory type the infiltration of the deeper tissues has often proceeded so far that the above treatment is quite inadequate. True, malocclusion must be corrected as much as possible in all cases, but that in itself is insufficient where there is extensive involvement of the tissues. Concerning involvement of the bifurcations of multirooted teeth it is necessary to find a means of reaching these deeper tissues. Particularly in these cases, the co-operation of the patient is of vital importance. The patient's efficiency regarding home care together with regular prophylactic service by the dentist is imperative. These are largely routine measures, yet they are essential in all treatment of periodontoclasia.

Curettement in so far as teeth alone are concerned does not suffice. Curettement of the tissues surrounding the tooth roots is absolutely essential to stimulate some form of tissue regeneration. The mode of treatment herein outlined which makes its attack on these filthy interdental areas consists of careful curettement to secure a full regeneration of tissue by granulation from the bottom of the pocket upwards. Under this treatment the swelling invariably subsides, peridental tenderness disappears. Suppuration is eliminated, and there begins a simultaneous granulation in the depths of the pockets, which, in time, will progress to a startling degree in rebuilding the interdental tissues.

This may be considered as a conservative method over the radical or surgical treatment. There is no question as to the efficient results of either treatment under the care of a skilled, observant operator. The conservative method of curettement is frequently used, as the desired results may be gradually accomplished with little or no shock to the patient.

Treatment at no time should be limited to one particular form, for if so, ultimate failure is inevitable. In diagnosis and treatment outlined, careful consideration should be given to each of the following: Systemic and dietary conditions, chemical reduction of bacteria, mechanical adjustments, instrumentation and gum massage, and surgical treatment. It is often difficult to decide which method is better to employ. The method chosen depends upon the amount of vertical dimension lost, the degree of deformity, the condition of the bone around the remaining teeth, the prognosis, and the patient's physical ability to withstand the course of treatment.

Cognizance of mechanical deficiencies as well as pathologic processes in and around the teeth demands a knowledge and understanding of design and function of the organs of mastication. Nature designed and shaped hundreds of different surfaces and inclined planes of the teeth; so, in considering the treatment of periodontoclasia, we must bear in mind the vast number of geometrical planes and designs of the teeth. Each plane has a specific purpose in the scheme of mastication.

Occlusal equilibration by natural wear on teeth saves many mouths from periodontoclasia. Unfortunately, natural wear does not always progress symmetrically. The amount of wear is an extremely variable factor. Excessive wear and loosening of teeth frequently result when teeth are out of alignment.

The elimination of irritants, such as food debris, rough surfaces, bacteria, and salivary calculus, is essential. These are fundamental in every form of treatment of periodontoclasia. Once these principles are grasped, the various current treatments can be considered from the standpoint of their theoretic and practical effectiveness. If the practitioner proposes surgical treatment, the above mentioned prophylactic measures are essential.

Periodontoclasia in its simplest form usually involves inflammation at the base of the gingival sulcus, which causes a proliferation of the epithelial cells, even though they proliferate downward at the expense of the periodontal fibers of the underlying connective tissue, and are degenerated because of the irritants and congestion, and hence are loosely held together and easily torn apart to lead to deepening of the sulcus.

The word periodontoclasia means breaking down of the investment tissues of the teeth. It is a local disease in which the attacking fibers of the tooth root and the alveolar bone are progressively destroyed by inflammation. Inflammation and infection occur more readily in tissues in which the blood supply is meagre or sluggish, or in which the tissue cells are improperly nourished, or are poisoned. Vitamin deficiencies, and the presence of metabolic toxins and poisons play a part in some cases by promoting inflammation and infection. These conditions may generally be disregarded in a practical consideration of the etiology and treatment of periodontoclasia.

The greater the emphasis on local causes of inflammation the greater the success of treatment. The idea of a direct systemic causation may sometimes lead the practitioner off the track into a realm of uncertainty and speculation to the neglect of simple local conditions that can easily be discovered.

The discussion of periodontoclasia has so far been concerned with simply bacterial invasion and calculus formation due to uncleanliness about the teeth. Mechanical injury of the periodontal tissues opens the way for deep infections not necessarily associated with uncleanliness. When the shifting of the tooth is rapid or the tooth cannot find a position in which it is free of excessive stress, the condition of the periodontal membrane on the side of the stress becomes pathologic. Bone is dissolved and the periodontal membrane between the tooth and the bone is thickened. Constant backward and forward movement of the tooth during mastication prevents bone development to stabilize the tooth in its new position. As a result, on the traumatized side, is a set of vascular degenerative and inflammatory changes, which often open the way for destructive infection from without, resulting in deep periclasial pockets. Food impaction is another type which may cause harmful and serious results. Food fibers may act as a mechanical wedge to split the epithelium away from the tooth surface, and if the food is long retained, it acts as a very highly irritating foreign body causing extensive inflammation and congestion of the surrounding tissues.

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## THE NORTH LOUISIANA SANITARIUM

The meeting was called to order by the President on February 23, 1937, with 25 members present. After the disposal of routine business, attention was turned to the scientific program.

Dr. Lucas presented a case of hemorrhagic disease of a newborn. It was suggested that faulty diet in prenatal state may play a large part in causing these hemorrhagic conditions in the newborn. He then discussed the differential diagnosis and urged that trauma and syphilis be ruled out in every case. The case report dealt with an infant born on December 29, 1936, who began to vomit blood and pass blood from the rectum on the second day postpartal. The baby received 30 c.c. blood intramuscularly for two successive days. This therapy was supplemented by fluids and calcium gluconate and sedation. The child made an uneventful recovery to date. The case was discussed by Drs. Dickson, Webb and Mays.

Dr. Herold reported a case that was sent to the hospital with a diagnosis of diabetes mellitus and Addison's disease. After a most thorough study, it was found that the patient at the time of admission to the hospital evidently did not have diabetes nor Addison's disease. Dr. Herold made a presumptive diagnosis of Simmond's disease on the basis of emaciation, low basal metabolic rate, low blood pressure, decreased glucose tolerance and other symptoms of hypofunction. The case was discussed by Drs. Mathews, Shavin, Rigby and Mays.

Dr. Stamper then presented a case of bilateral massive renal calculi. The patient presented symptoms of backache but had not evidence of urinary infection. Laboratory investigation revealed increased calcium excretion. On a low calcium intake, the patient was later seen at Johns Hopkins, where roentgen ray picture of the genito-urinary tract revealed no stone. The diagnosis of hyperparathyroidism was then confirmed and the patient advised to have the parathyroid removed. Refusing operation, the patient was then advised to have irradiation and a subsequent parathyroidectomy if the condition did not improve. Dr. Stamper, in conclusion, urged a more conservative treatment of renal calculi and investigation of parathyroid function, especially in those patients who have recurrent stones. He also presented a case of recurrent attacks of stone with a recent formation of a large stone in the left kidney that he knew had good function. In view of the fact that the opposite kidney had had stones in the past, he removed the massive calculus out of the left kidney by nephrostomy. The patient made an uneventful recovery and to date has had no impairment of the operated kidney.

H. M. Trifon, Sec.

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## HUTCHINSON MEMORIAL CLINIC

*Symposium on Heredity in Disease*: Conducted by the Department of Preventive Medicine, Dr. C. C. Dauer presiding.

Hereditary Constitution (Dr. W. H. Perkins, Department of Preventive Medicine): The sum total of an individual's makeup developed under the manifold influence of his environment in the direction dictated by his inheritance is called his constitution or habitus. Within the limits of his ability to change his environment or to adapt himself to it, he is capable of many lines of development of his phenotype or somatic organization. But always there is beneath this a more basic framework unsusceptible to changing conditions of development or environment and called the genotype, or hereditary constitution.

Any constitutional studies must, therefore, recognize the tremendous import of the inherited basis. In order to recognize the genotype pattern in a given individual, it must be known how and where to look for evidence of it in his entire constitution. At present this can only be done on broad principles for no one is yet able to measure with any accuracy the changes from the original pattern brought about by the addition or subtraction of characteristics through environmental influences. But it is possible to see beneath the sum total of an individual's makeup certain patterns of character, which when grouped together, form resemblances to race and family types, sex character associations and, according to Draper, disease types.

It is to be noted that the anatomic and morphologic criteria of types are largely of the same order as those used in general biology for species determination; that they are strictly genetic in a sense that there is a tendency to disease determined by gene patterns and relationships and brought about by environmental influence is not so certain and remains an open question.

We cannot pass over the current enthusiasm of regarding many of our constitutional types as hormonal or endocrine in origin. This trend has sought to explain everything from race type to individual peculiarity of temperament, with, it must be admitted, but little regard for its scientific truth and accuracy. There is no real basis for assuming that because an apparently normal person presents peculiarities throughout his whole course of development, which remind us of patients with endocrinopathies, that his individuality was caused by an imbalance of certain glands of internal secretion which are admittedly able to bring about such a picture. But since such resemblance does exist and because these types tend to appear in families, we may later be able to prove that they are types dependent on a genetic pattern in which glandular inheritance plays an active part.

A group of disease conditions even more generally associated with hereditary constitution is that due to the so-called "diatheses," "tendencies," "susceptibilities," and "predispositions." Ryle, the most recent of those who have attempted to define diathesis, looks upon it as a transmissible variation in the structure or functions of tissues rendering them peculiarly liable to react in a certain way to certain extrinsic stimuli. This definition brings totgether the different opinions of the old and new schools representing diathesis and inheritance, respectively, and places the whole subject within the realm of genetic investigation.

The revival of interest in heredity and disease manifests itself in a large bibliography of medical articles dealing with inheritance in such diseases as cancer, diabetes, arteriosclerosis and epilepsy and in a group of much less tangible entities, such as, resistance or susceptibility to specific infections, allergic hypersensitiveness and idiosyncracy to certain drugs and poisons. Many competent authorities are now so insistent that cancer and diabetes and liability to certain infections and increased resistance to others have an hereditary constitutional basis, that their word has become almost generally accepted. Yet the evidence for it still rests on a few facts which are highly suggestive but not proved.

Family incidence, when repeatedly shown in investigations in family studies, is a potent argument in favor of heredity and, especially so, when a careful analysis of all suscepted etiologic factors in the disease fails to account completely for its origin.

When it can be shown that there is a correlation between any manifestations of disease and a hereditary constitutional factor, the argument in favor of hereditary becomes even more impressive.

Garrod is insistent that there are inborn factors largely of a chemical constitutional nature in some of the errors of metabolism and hypersensitiveness to proteins and other chemical agents.

Thus heredity, although unproven, must be held suspect in the group of diseases and morbid processes so far discussed but the evidence in favor of and against it is so manifold that no attempt can be made here to detail it. It is certain that we have a formidable array of morbid conditions in man which are believed to be inherited and, therefore, may be represented in genetic patterns of individuals. If any number of them are later proved to be hereditary beyond doubt, we can then say without question that we know their primary causative factors, that is, the determiners in the chromosome inheritance. The evidence of heredity is so strong in some of these abnormal states that they are already in a position of being attacked through attempts to intercept or oppose their cause.

Heredity Defects (Dr. Harold Cummins, Department of Anatomy): The topic of this Clinic Staff Meeting reminds us of the fundamental bearing of heredity on various medical problems, emphasizing too our relative neglect of the subject in teaching. We would do well to follow the example of the College of Medicine at Ohio State, where there has been instituted recently a course in medical genetics under the direction of L. H. Snyder. This course, required of sophomores and presented in company with the work in normal physical examination, consists at present of twelve one-hour lectures, supplemented by demonstrations of clinical material and outside reading.

I have been asked to discuss the heredity of selected defects; it is true that some of these conditions have little or even no clinical importance, yet an analysis of their hereditary transmission supplies a background for better understanding of the more significant disease traits presented by other speakers, where the precise mode of inheritance is often not so easily determined.

Reference may be made to the mechanism of transmission of characteristics from parents to offspring. (Slides and explanations: genes; unit characters; multiple factors; dominance; recessiveness; sex linkage). Just as normal features behave in accord with known laws of inheritance, which may be simple in their expression or complex according to the trait under consideration, so are transmitted various structural and functional defects. (Slides of examples).

Though the laws of Mendelian inheritance had been established long before through studies of plants and animals, the first demonstration of their operation in man was reported by Farabee in 1905, based on five generations of a family presenting thirty-seven members with fingers each lacking one phalanx (brachydactly, specifically hypophalangy). About half the children in matings where one parent is affected show the anomaly, while no normal descendent of those affected has abnormal offspring. This indicates that the trait behaves as a simple Mendelian dominant, for example, like the dominance of brown eyes over blue, and since its frequency is equal in the sexes there is no sex linkage. A parallel case may be cited in the observations of Harvey Cushing, 1916, who traced through seven generations a family in which about 25 per cent of the members were affected with interphalangeal ankyloses of the fingers (symphalangy). Again about half the children of those having the ankyloses are similarly abnormal, and the condition may be rated as dominant over normal. Family histories of polydactyly, syndactyly and other digital malformations are available, sometimes showing an inheritance behavior other than dominance, but we must pass to more varied hereditary conditions.

The foregoing instances are outstanding structural departures from normal, formed as the embryo develops and naturally evident at birth. Some hereditary defects, irrevocable though they are in the genetic constitution of the individual, do not make their appearance until after perhaps many years of an apparently normal existence. Macklin and Bowman, 1926, report a familial atrophy of the peroneal muscles offering an excellent illustration of such behavior. In this family, traced through five generations, the onset of the atrophy is usually at the age of ten to twenty years, though it may be delayed until forty years. It is a dominant character. Thus an individual carrying the genetic factor, while as yet unaffected and with a truly normal mate, will produce children half of whom are predestined to the atrophy which is equally inevitable in their tainted parent.

Maculocerebral degeneration, Friedreich's ataxia and various other neurologic affections are hereditary and similarly delayed in manifestation. When the traits are recessive, as in the two examples named, the defeat would be exhibited in one out of four children of a mating in which both parents, though unaffected, carry the recessive trait; should it happen that two affected individuals reproduce then all the children are affected, as in dominance, but, fortunately, such a combination would occur but rarely, and the possibility of reproduction of affected individuals in some of these grave conditions is nil, owing to their early death.

Some inheritances are sex-linked, for example, hemophilia, color blindness and night blindness, the determining genes being carried by the sex chromosomes and behaving in these examples as responsive.

The mechanism of inheritance is frequently not the simple transmission of a unit character, but is dependent upon the combination of two or more factors. Sanders, 1934, reports on the inheritance of harelip and cleft palate, an illustration of multiple-factor recessive inheritance. In Holland, where his data were collected, the frequency of harelip is once in 954 births; the complexity of the genetic combinations necessary for the expression of the defect is indicated in Sanders' estimate that one of sixteen persons bears determining factors.

Heredity in the Degenerative and Metabolic Diseases (Dr. W. A. Sodeman, Department of Medicine): The usual methods of genetics, as applied by the experimental geneticist, have limitations in their application to the human. Difficulties arise in: (1) Lack of control of human matings; (2) the life span of the human is long so that one observer may not study many generations first hand; (3) inadequacy of data on families; (4) lack of large families; (5) lack of interest on the part of the physician; (6) the varying environment as a precipitating cause and (7) the inadequacies of diagnosis. Such are the problems confronting one attempting to show conclusively the place and importance of heredity in the degenerative and metabolic diseases.

Methods of study suitable for use in the establishment of heredity in human diseases are, briefly: (1) The incidence of consanguineous marriage in parents. This is 0.2 per cent in the general population. Figures above this indicate hereditary factors and recessiveness of the factor. (2) Study of identical twins; (3) the frequency of disease in related and unrelated persons; (4) pedigree method and (5) statistical analyses.

Essential Hypertension. All of these methods have been applied to hypertension. An enumeration of all such data would be too time-consuming. Carefully controlled studies indicate that in patients with essential hypertension the familial incidence of vascular disease far exceeds that of patients suffering from other complaints. Family after family is reported with definite hereditary trends.

Weitz, using the pedigree method, has added much to our knowledge of heredity in hypertension. He studied the collateral relatives rather than the more remote generations. Such individuals were available for examination and definite objective signs of disease were substituted for heresay evidence in a history. Omitting the details of his analysis I will quote his conclusions that the predisposition to essential hypertension behaves in the majority of cases as a Mendelian dominant. Studies of identical twins in widely divergent environments are confirmatory of Weitz's conclusions.

There are, of course, those who deny heredity as a factor of importance in essential hypertension. This group brings forward environment as the all important factor, particularly psychic reactions. These are, as well, often secondary to the hypertensive state. The negro in his native land seldom develops hypertension. In 1800 negroes examined in Africa no instance of hypertension was found. Transplanted to this country, the negro commonly develops essential hypertension. Environmental factors and admixture of blood appear to be important. The predisposition may be present with a necessity for environmental factors to bring it out.

Arteriosclerosis. Hereditary influences are known to exist in arteriosclerosis of the brain and heart. Arteriosclerosis occurs in all of us, particularly beyond the age of 40. The extent necessary to cause symptoms occurs early in some of us and late in others. The early occurrence of the disease in the absence of etiologic agents known to hasten its progress, such as diabetes and hypertension, is not unusual and entire families have shown this tendency. Such changes are apt to choose one portion of the body almost exclusively, or in more marked form, expressing itself, for example, as coronary disease, or apoplexy. The information available in the literature is scanty and often confused by the presence of essential hypertension, a strain known to accelerate the process. From this standpoint much of the available data are valueless, for it is estimated that two-thirds of all cases of well marked peripheral arteriosclerosis have a hypertension. Familial histories and the other avenues of approach to heredity in disease have been applied to the sclerotic syndromes. All of us may live sufficiently long to develop the general sclerotic process which may progress sufficiently to produce death. In certain families, however, the process is more markedly localized and comes on at an extremely early age, producing a family history in which hereditary factors of importance cannot be denied.

Diabetes Mellitus. Perhaps the most important work on heredity in diabetes has been done in this country by Joslin and his group. These workers have attempted to relate diabetic inheritance to the Mendelian expectation, considering at first that a single recessive gene was the genetic factor concerned. Others believe that transmission may be dominant as well. Cammidge considers this of clinical importance. He states that the dominant variety is invariably mild and easily controlled by diet alone. It usually persists for many years, even in young people without causing serious symptoms. The recessive form is more serious. Transmission by multiple genes is also described.

The racial factor, that a high per cent of cases occurs in Jews, is also significant evidence.

In all these diseases, hypertension, arteriosclerosis, and diabetes mellitus, most observers agree that inheritance plays a part. The relative importance of heredity and environment in their interaction with each other is the basis of most disagreement. . Such evaluations are so far incomplete. The settlement of these problems would be of practical importance because these diseases are so frequent in their occurrence, and are, unlike allergic states, killing diseases. Such information could be helpful in diagnosis and treatment as well as prevention.

Genetic Factors in Resistance to Infectious Diseases (Dr. C. C. Dauer, Department of Preventive Medicine): Before the discoveries of Pasteur the question of heredity was more seriously considered than later, but in recent years it is again being studied intensively. Tuberculosis was at one time regarded as due to a constitutional weakness hereditarily transmitted, and this idea has never been discarded completely.

The groundwork of experimental knowledge of resistance to infectious disease was laid about 30 years ago by workers with plant diseases. Resistance was found to be inherited in some instances on multiple and in some on a single factor basis with resistance dominant more frequently than susceptibility. Inborn resistance to one infection generally proved independent to another. No anatomical or physical mechanism has thus far been proved casually related to resistance or susceptibility. This latter statement may also be said to apply to animals.

Although a number of observations have been reported on the possibility of an hereditarily transmitted resistance in certain strains or breeds of animals, the studies of Webster will be used here because they have been more rigidly controlled. Working in the Laboratories of the Rockefeller Institute of Medical Research since 1923, Webster has been able to show that batches of animals, in this instance mice, bred in the laboratory in an effort to control all possible environmental variables, if exposed to infectious agents in a way simulating nature, differed from batches of uncontrolled mice. Selective breeding experiments seem to indicate that certain strains of mice are highly resistant to certain bacterial or virus infections, while other strains of mice are very susceptible. Crossing a highly resistant and highly susceptible strain resulted in mortalities of the progeny as would be expected on the basis of single factor type of Mendelian inheritance for resistance. Resistance proved dominant in each instance. Individuals inherently resistant or susceptible to one infection may or may not prove likewise resistant or susceptible to another.

Webster's conclusions regarding the importance of genetic resistance in certatin strains of mice have been questioned on the ground that all environmental influences have not been taken into account. When viewed in the light of other observations on animals Webster's work does strongly suggest that genetic factors are largely responsible, in some instances at least, for an increase in resistance.

Some experimental work which has been reported in recent years is suggestive of an hereditary influence in resistance to certain diseases in man. In some outbreaks of poliomyelitis in recent years it has been reported that a greater number of cases of poliomyelitis occurred in persons who were in blood group A than in group O. Another investigator reports that individuals belonging to group B appear to possess a relatively greater degree of natural resistance to poliomyelitis infection. This statement was made after testing the virucidal properties of blood from recent cases and from recovered cases of the 1916 poliomyelitis epidemic. Similar determinations of blood from normal adults who have not had poliomyelitis have not been carried out in sufficient numbers to warrant drawing any definite conclusions.

A similar constitutional deficiency of group A individuals has been reported in immunity to diphtheria. It was found that persons in group A did not have as high a content of diphtheria antitoxin in their circulating blood after recovery from that disease as was the case with other blood groups.

The differences in tuberculosis among white and negro people can best be explained on a genetic basis. Some attempt to explain differences in resistance to tuberculosis in whites and negroes by saying that exposure to infection in childhood is less frequent in the latter. Pathologic characteristics of the disease in adults do not support such statements nor do the many reports of tuberculin tests on negro children. Negro children are infected just as frequently as white. In the adult white person the reinfection type of disease is usually limited and there is no tendency to spread by way of the lymphatics. On the other hand in the negro the pathologic picture is usually that of widespread generalization of the infection, frequently in upper and lower lobes, with a tendency to spread by the lymphatics. These characteristic differences in the pathology of the disease in whites and negroes are undoubtedly evidence of a difference in immunologic response to infection. In the adult white person who comes in contact with infection in childhood, there develops an acquired resistance which tends to localize and wall off his pulmonary disease. In the adult negro infected in childhood this response is either lacking or is of very short duration.

There is also reason to suppose that in the white race considerable variation exists among different individuals in their resistance to tuberculosis which may be the result of a genetic factor. Individuals vary in their native ability to form antibodies and to maintain them at a high level. In the experiments previously mentioned on highly resistant and highly susceptible strains of mice to specific infections a considerable degree of inbreeding was accomplished to bring about definite genetic differences. There are two reasons why inherited susceptibility to tuberculosis is not readily detected as in controlled experiments on animals. First, there is comparatively little inbreeding of pure strains of resistant or susceptible persons. Second, susceptibility is a recessive genetic character. On the other hand, because genetic resistance is a dominant character, it is of great importance in slowly elevating the average level of resistance of a race through the principle of survival of the fittest. There are many who claim that this factor is partly responsible for the steady decrease in mortality from tuberculosis.

## TRI-STATE HOSPITAL

The meeting called to order on February 25, 1937, by Dr. L. H. Pirkle, Acting Chairman, with thirty-one members and one visitor present. Routine and new business was disposed of as usual.

Dr. Knighton, Jr. had arranged a very interesting and instructive scientific program on gastro-intestinal pathology with special reference to gastric hemorrhages.

The first case, by Dr. Knighton, Sr., was that of a cardiospasm with typical roentgen ray findings. Under treatment with anti-spasmotics the patient made a satisfactory recovery and the symptom of difficulty in swallowing disappeared.

The second case, by Dr. Atkin was that of a white male aged 34 years whose past history was negative. The patient went to work one morning feeling well and after doing some straining work felt faint and weak but recovered; later in the afternoon the same symptoms recurred and he vomited bright red blood, fainted and was brought to the Hospital. He had had no previous symptoms to point to gastrointestinal pathology. Physical examination was essentially negative except for shock and slight tenderness in epigastric region. He was given general routine care with intravenous fluids and later small feedings and alkaline powder. A roentgenogram showed a penetrating ulcer. The patient left Hospital on thirteenth day, taking nourishment by mouth and greatly improved.

The third case, by Dr. Wren, was that of a white female aged 33 years, a nurse by profession. She gave a past history of typhoid at the age of 7 years, malaria several times and mercury poisoning following treatment, pneumonia in 1917 and 1918, gastric hemorrhages in 1933 with closure of ulcer followed by a stormy recovery, positive wassermann and anti-luetic treatment; has a child 3 months old with a positive Wassermann. Present history: following the nursing of a case of influenza the patient became acutely ill with bleeding from the nose and ears, severe headache, chill and fever of 105 degrees. She entered the Hospital and diagnosis of pneumonia was made. Two days later she had gastric hemorrhages and two days later died. Autopsy findings reported briefly by Dr. Sam Kerlin: Linear scar where old ulcer excised, mucous membrane of the stomach and duodenum hyperemic with marked capillary hemorrhages. Left lobe of lung showed gray hepatization, heart anemic and muscles flabby, spleen slightly enlarged, liver normal, blood vessels to gastrointestinal tract engorged and dilated, aorta normal, no indications of lues from the autopsy findings.

The fourth case presented by Dr. Williams, was that of white male, aged 57 years, bachelor. On September 6, 1935 patient felt dizzy, had a massive gastric hemorrhage, fainted, had profuse sweating and severe shock; brought to Hospital, given alkaline powder with strict diet. He left the Hospital on September 17. Gastric analysis October 2 showed total acid 91, free HCl 60, lactic acid none. Roentgen ray negative for ulcer; put on frequent feedings and diet. On February 20, 1937, Dr. Knighton, Jr. saw the patient after he had passed several copious stools with dark blood present; patient fainted, was in shock and sent to Hospital; vomited large amount of blood, grew progressively worse and died two days later. Autopsy findings: Stomach normal with exception of hyperemia of mucosa walls, multiple petechial hemorrhages throughout the mucosa, and slight constriction at pylorus, no ulcer scar, blood vessels engorged, appendix normal, spleen soft and twice normal size, kidneys normal, pancreas normal with exception of being nodular. The liver was one half normal size, yellowish and granular, cut surface gave grating sensation. Conclusion: Previous hemorrhage undetermined. Present hemorrhage due to back pressure on vessels by cirrhosis of liver.

There followed a general discussion, including reporting of several other cases of gastric hemorrhage due to various causes, such as peptic ulcer, leukemia and focal infection.

After statistical review of work for January, the meeting adjourned.

D. B. Daniel, M. D., Sec.

## THE SHREVEPORT EYE, EAR, NOSE AND THROAT SOCIETY

The Shreveport Eye, Ear, Nose and Throat Society met in regular session at the Charity Hospital, the evening of Monday, March 1, 1937 at 7:30 o'clock. The president, Dr. L. W. Gorton, presided. The following members were present: Drs. L. W. Gorton, T. D. Boaz, John T. Crebbin, Claude LaRue, W. L. Atkins, and J. A. Wilkinson.

Dr. H. G. F. Edwards was a guest of the club and presented three very interesting cases from the Tumor Ward of Charity Hospital. His first case was a white woman sixty years of age. Examination showed an enlargement and induration of the soft tissues over the right antrum. Biopsy from this area was positive for carcinoma. Roentgen ray showed considerable bony destruction, extending through the roof of the antrum into the orbit. Dr. Edwards is treating her with deep roentgen ray and plans later to use radium.

The second case presented by Dr. Edwards was a colored woman who had a marked protuberance over the right frontal sinus, which had caused marked protopsis of the right eye. The mass has enlarged rapidly and the eyeball in addition to displacement is completely destroyed as an organ of sight. On account of non-cooperation of the patient neither roentgen ray pictures nor biopsy could be obtained, consequently the diagnosis remains undetermined and no treatment has been given.

The third case presented by Dr. Edwards was a colored woman with a protruding mass of the central frontal region. Roentgen ray showed osteomyelitis with considerable bony destruction. The right eyeball was displaced downward and outward and there was considerable thickening and induration of the conjunctiva, this case though similar to the preceding one in many ways was thought to be of luetic origin. The fact of the slower development the osteomyelitis and the positive Kahn were the points given by Dr. Edwards which led him to the above diagnosis.

Dr. LaRue presented a young white woman who complained of painful eyelids. This condition had existed over a period of many months and the patient had consulted numerous physicians without relief. She is a stenographer and has had to give up her work on account of her eyes. There was nothing in the family or personal history which would account for her symptoms. Examination was negative in every respect. She wears glasses that have been accurately fitted under a cycloplegic which give her normal vision and her muscle balance is normal. No one was able to offer any definite opinion and we shall await with interest a later report from Dr. LaRue.

This was the regular time for election of officers, but on account of the small attendance, a motion was made by Dr. Boaz, seconded by Dr. Wilkinson, that the election be postponed until the next meeting.

There being no further business to come before the society, the meeting was adjourned until the first Monday in April.

J. A. Wilkinson, M. D., Sec.

## MERCY HOSPITAL

The meeting was called to order by Chairman Dr. John Dicks and the mortality investigation was first taken up under which came two very interesting cases.

The first was one of rheumatic heart disease with auricular fibrillation and congestive heart failure. Patient had had a break in decompensation about six years previous to final admission during which there was generalized anasarca. Response to diuretics was good and he was compensated sufficiently to get about but never able to do manual work. Since this initial attack he has remained a chronic rheumatic heart case.

Three months ago there was another severe break in which he developed pulmonary edema and auricular fibrillation. At this time also the response to medication was good until his most recent and fatal attack. This last break, besides the above mentioned findings, was characterized by hiccoughs, severe chest pains and a marked jaundice. The chest pains were proven to be pulmonary infarcts and the jaundice was thought to be due to passive congestion of the liver with cirrhosis. At autopsy, numeorus soft stones were found in the gall gladder and one large stone in the common bile duct, which probably had to do with the jaundice. Thoracentesis was done on numerous occasions, the amounts varying from 700-1500 c.c.

Autopsy verified the diagnosis, most of the pathology of the heart being on the mitral valve and giving it a button-hole appearance.

The second case for discussion was that of an adult, 45 years old, who had come into the hospital with acute pain and rigidity in the upper and lower abdomen associated with nausea and vomiting. There was at first extreme tenderness in the upper right quadrant with pain radiating toward the shoulder, but later the pain and tenderness became localized in the lower right quadrant. Diagnosis was made of acute appendicitis and appendectomy was done. The diagnosis was proven at operation, but on second postoperative day the patient began to cough. So strenuous was the cough that the patient ruptured a varicose vein in the esophagus, causing him to vomit bright red blood repeatedly. This continued, and the patient gradually grew worse and died on the fifth postoperative day.

Partial autopsy revealed ruptured varicose veins of the esophagus and cardia of the stomach. There was little cirrhosis of the liver, but sufficient adhesions around the liver to produce portal obstruction.

The meeting was climaxed by a very interesting talk and lantern slide demonstration by Dr. I. M. Gage of the Department of Surgery of Tulane University on "The Postoperative Care of Patients Based on Physiological Principles."

H. Ashton Thomas, M. D., Sec.

## HOTEL DIEU

The regular monthly meeting of the Staff of Hotel Dieu was held in the Nurses' Lecture Room of Hotel Dieu on Monday, February 15, 1937 at 8:00 p. m. The meeting was called to order by the President, Dr. H. E. Bernadas, with the Secretary, Dr. J. A. LaNasa, at the desk.

### REPORT OF A CASE OF POPLITEAL THROMBOSIS FOLLOWING LOBAR PNEUMONIA

Dr. Louis Levy, in presenting this case, said that the object of the report of blood clot in an artery following pneumonia is to add another case to the records, and to call attention to a condition that has been corrected in at least one case without the loss of limb.

The etiology of these cases has not been cleared up other than that the literature shows about three other cases which followed pneumonia. The diagnosis is easy so far as knowing that the circulation is cut off, but difficult, in localizing the clot if embolectomy is to be hoped for. The following signs and symptoms are noted: Severe pain followed by numbness in the affected foot and up to the middle third of the leg; a few minutes later the toes and leg are cold, pale, and anesthetic; no pulsation in the anterior or posterior tibial arteries; gangrene sets in rapidly and marks off at the end of the blood supply of the patulous part of the artery. In one case in which embolectomy was done, severe pain at Poupart's ligament showed that the clot must be in the femoral region, and embolectomy was successfully performed. When a blood clot occurs and gangrene asserts itself, there is but one procedure and that is amputation high enough to insure blood supply to the remaining part of the member.

The following case is interesting because of the rarity of this condition and the recovery of the patient, who had to submit to amputation after a severe case of pneumonia left him a poor risk as a surgical case. I also hope to add this case to the literature from which I am only able to find about three previous cases.

### CASE REPORT

The case is that of L. F. M., a white male, 43 years old, whose occupation is shoe repairing helper. He is married and has two healthy children. Family history had no bearing on the present illness. He had been a cigarette smoker since the age of 16, smoking a pack and over daily. He had experienced smoker's cough for many years. He had been nervous for the past six years and had had financial worries which added to this condition.

I was first called to see the patient about December 20. He was then in the third day of what was determined to be lobar pneumonia. The patient was very ill and had a severe case of pneumonia necessitating the use of oxygen up to and after the crisis. The heart was sustained by use of digitalis and whiskey.

He was over the attack of pneumonia, when on January 14, I was hurriedly called and found him in severe shock with pain radiating from the toes to above the knee, foot blanched and cold, and no pulsation in pedal artery. An opiate was given for the pain, and opiates were necessary up to the time of amputation. The pain moderated as gangrene set in after the line of good blood supply was determined. Amputation was done at the junction of the middle and lower third of leg. The operative procedure followed under spinal anesthesia, 125 mg. of novocain being introduced between the third and fourth lumbar spaces. The anesthetic was given and followed through by Dr. Abraham Mattes. A classical circular amputation was performed at the middle and lower third of thigh. Duration of the operation was 20 minutes. There was a small loss of blood and little shock occurred. The patient had an uneventful recovery, but lost, through slough, a small part of the flap. The patient is now able to be about on crutches. He is cheerful, and anxious to resume work.

### BIBLIOGRAPHY

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Searcy, G.: Pneumonia followed by embolism and gangrene, M. Rec., 139:67, 1934.

Vanden Burg, H. J.: Thrombosis of popliteal artery. gangrene of leg following, J. Mich. Med. Soc., 15:536, 1916.

### STREPTOCOCCUS HEMOLYTICUS AND PNEUMOCOCCUS BLOOD STREAM INFECTION FOLLOWING MASTOIDECTOMY

Dr. J. B. Larose presented a patient 13 years of age, who had had a mastoid operation on right ear at Charity Hospital. In 1935 she had pyelitis, and during childhood gave a history of having had measles, varicella and meningitis at the age of 3, following a fall.

The patient, Miss L. W., aged about 28 years, was first seen on the afternoon of Sunday, March 29, 1936. At that time there was a slight discharge from the left ear with a rather marked narrowing of the auditory canal. Patient was restless with marked malaise. Temperature was

104.6° F. There was a rather severe tenderness over the mastoid tip and at the antrum. A diagnosis of acute mastoiditis was made.

The patient was immediately sent to the hospital via ambulance, where a rush blood count and roentgen ray of mastoids was taken. The blood count showed 17,750 polynuclears, 11 small lymphocytes and neutrophiles 88 per cent. There was a heavy trace of albumin in the urine with acetone and indican present, also sugar 1 per cent. Roentgen ray showed a slight cloudiness of the periantral cells, but no definite roentgen ray evidence of mastoid disease. Sedative ear drops were prescribed. In addition a saline purgative and continuous ice cap to mastoid region.

The following morning the temperature was 102.6° F. and the tenderness over the mastoid marked. It was decided to operate. Under a general anesthesia, the skin incision was made and the cortex of the mastoid exposed. This did not have the normal appearance, and, with the removal of only a small part of the cortex, pus was found in many coalescing cells. The antrum was located and probed. The cells were necrotic over the region of the lateral sinus. This was outlined and other cells extending very far posteriorly were exenterated of pus. In using the suction tip the sinus was opened and immediately a pressure pack had to be inserted. The large cell at the tip of the mastoid was cleaned out and an iodoform gauze pack was used to stop the hemorrhage. Three silkworm sutures were taken in the skin. The operation was practically completed before the sinus was opened.

On March 31, 1936, the blood culture was negative, but the blood count was down to 2,000 polyneuclears with 18 per cent neutrophiles. The patient spent a fair day, but on the following day had a severe chill with profuse diaphoresis, following which the temperature rose to 104.2° F. There was no bleeding from the mastoid. A culture taken during the operation showed: (1) Few pus cells; (2) pneumococci and streptococci. Her temperature did not return to normal and it was thought advisable to transfuse the patient, 250 c.c. citrated blood being given by indirect transfusion. She had another chill after transfusion, and the temperature rose again. At night the patient was very restless and talking at random. The cardiac condition was good, but patient's general condition was rather alarming. The patient vomited frequently during the next day.

On April 2, 1936, another transfusion of 125 c.c. blood was given by indirect transfusion. On the same date the blood culture was positive for pneumococci and Streptococcus hemolyticus. This put quite a grave aspect on the prognosis as can be appreciated. The patient's temperature continued very septic in type, ranging between 104.0° F. and 98.2° F. for the next few days. The pulse rate was rapid as a rule.

On April 3, 1936, a small portion of the iodoform pack was removed and some purulent and necrotic secretion was found in the wound. Subsequent transfusions of 5 c.c., 250 c.c., and 250 c.c. of blood were given on April 5, 6 and 8. The latter two were direct. A fragility test on April 6, 1936, showed initial hemolysis to begin at 36 per cent and complete hemolysis at past 26 per cent. It was very difficult to obtain compatible donors. A consultation was held with Drs. Nix, Boudreaux and Taquino on the advisability of re-opening the lateral sinus. There was some tenderness over the left external jugular, but no definite cording or hardness along the path of the vein.

On the morning of April 9, 1936, under general anesthesia a ligation and section of the left internal jugular vein was done by Drs. Nix and Boudreaux. After this the mastoid area was prepared.

The sutures were removed and the mastoid cavity again exposed. There had been some attempt at healing with granulation tissue, but there was also some necrotic tissue. This was all curetted out and the bony covering of the sinus approached. This covering was very gently removed for a distance of approximately three-quarters of an inch. This sinus wall showed direct evidence of disease, being yellow and thick. After having packed above and below with thin strips of gauze, a deliberate incision was made from both ends. There was no clot present, but there was no question about the presence of a marked infection. An iodoform pack was inserted over the incised sinus. The wound was left open and a mastoid dressing applied. The patient's condition was good all during the operation.

On April 9, 1936, she was given 2 c.c. pneumococcus antigen and 3 c.c. were given the following day. The patient's condition seemed to improve slowly for a while, but the temperature and pulse showed a very severe infection. On April 12, 1936, the temperature went up to 105.4° F. and she was restless. The pulse was fairly good, but still rapid, being 130 per minute. She was given two direct transfusions following the second operation, one of 150 c.c. on April 11, 1936, and another of 100 c.c on April 17.

Another unforseen and distressing complication began on April 7, 1936. The patient began suffering with pains in both thighs, more marked on the left. This was diagnosed as a phlebitis of the femoral veins as there was a rather marked tenderness along the course of these veins. This condition progressed and gave the patient quite a bit of pain. It finally settled in the left hip joint and remained there. Roentgen rays on May 1 and 8 showed no bone or joint pathology.

The blood culture was positive for pneumococci and Streptococcus hemolyticus on April 2, 3 and 4. On April 5, the culture was negative but another taken on April 10 was again positive. On April 13 a spinal puncture was done. Clear in appearance, 4 white cells per c.mm., 1 polymorphonuclear and 3 lymphocytes. The globulin and colloidal gold were normal. Cultures taken on April 20 were found to be negative.

Beginning about April 21 the temperature ran a more steady course, but was still septic in type. However, her general condition improved and the temperature gradually declined to the normal. The mastoid wound was healing with granulations and the discharge from the ear ceased. The hip condition was still painful and patient was getting codeine sulphate gr. ½ for relief. Magnesium sulphate compresses were used continuously to the leg, and also sunlight treatments. She remained in the hospital till discharged May 28, 1936.

At home the mastoid wound was dressed every second or third day. The wound healed nicely. The leg condition bothered the patient until July 6, 1936, at which time full extension of the leg was possible and the patient resumed work.

### DISCUSSION

Dr. G. Taquino: I think Dr. Larose presented the case very well. Cases of lateral sinus thrombosis have always been a problem to me. They are extremely difficult to handle at times. If we will consider the small veins that empty into the lateral sinus, we can readily see how an infection can come from the cellular tissue of the mastoid going through the small openings of the bony wall of the sinus and emptying into the lateral sinus producing an infection. We can also see how a thrombophlebitis of the veins, especially in the Streptococcus hemolyticus conditions, can go through the Haversian canals entering the dura and carry the infection by way of the dura through the sinus into the blood stream. Where there is a destruction of the red blood cells and reduction of hemoglobin in a Streptococcus hemolyticus, to me it is an indication for a transfusion. I believe that multiple small transfusions are more valuable, and if possible the use of a different donor each time is a very great benefit to the patient. In one case of Streptococcus hemolyticus twelve transfusions and four infusions were given. I have in mind a case which did not have a thrombosis of the lateral sinus but a thrombosis of the vessels going up into the Haversian canals into the dura and through the blood stream. I did a mastoid on that child and the child was given a blood transfusion and the temperature, after the transfusion, went to normal for a few days. She was eleven years old and developed a pelvic peritonitis form a mastoid infection. Pelvic infection in a child in whom the genital organs are undeveloped is probably one of the rarest things I know. In this particular case the patient died of pelvic peritonitis resulting from a mastoid. I might add that a large pelvic abscess had been drained. I do believe that multiple transfusions, proper care and watching the blood count and the lowering of hemoglobin is an index to what your patient is doing. Whenever there is a blood stream infection you have a fight on your hands. I have had exceptionally good luck. I have in mind another case in which the child developed an abscess following a lateral sinus thrombosis in the left pleural cavity which Dr. Nix opened and drained. She then developed an infection in the left ankle which had to be drained by through and through method. Then she developed an abscess of the left hip. The technic employed here was multiple transfusions, first 200-300 c. c. then 100-150 c.c and given frequently. In that way we were able to fight the infection and in this particular instance had a very happy recovery for the patient.

Dr. J. E. Isaacson: Dr. Larose is certainly to be congratulated on this case as well as Dr. Taquino. During the past five years I have been particularly interested in this type of infection and have gathered statistics from Charity Hospital as well as other hospitals and the mortality is extremely high, almost 100 per cent. About five years ago I happened to be a patient who was suddenly taken very ill, starting off with a nose irritation. I saw Dr. Homer Dupuy about six o'clock in the evening of that day at his office and did not remember anything for six weeks afterwards. Drs. Couret and Hauser made numerous examinations and found hemolytic streptococci present in repeated examinations. I was extremely ill for several months afterwards. I have since been called upon to give my blood in infections of this type for transfusions. As far as treatment is concerned some clinics definitely disapprove of transfusions but I believe they are of value although not used in my case. Other men use antitoxins in very large doses and I think that was what was used on me and I am convinced of their value, i. e. anti-streptococcal serums.

Dr. S. B. McNair: I had a case of hemolytic streptococcic infection which got well in spite of treatment. I was called to see this child about eight years of age who had a temperature 105°, and a hard chill. This was my first private mastoid case. I operated and found a thrombosis of the lateral sinus, so I ligated the jugular vein. Dr. Harris reported hemolytic streptococci. The medical man gave one indirect transfusion and in four or five days the child was normal, and went home in a week. Later he developed a mass in the mastoid region and I decided to cut it off. I did and the thing recurred twice. The child is still well.

Dr. G. Anderson: One week after Dr. Taquino operated I was able to see this case by a coincidence. At that time the blood stream culture had been negative for a few days and the mastoid wound was healing, but the patient was very seriously ill with a peritonitis which, I believe, was the cause of death.

I was very much interested in Dr. McNair's case with the mass presenting at the mastoid, most likely the decompressions which he performed, although unintentionally, helped the child a great deal.

I still favor the use of transfusions and believe that frequent small ones may be preferable to occasional large ones as there is some value from the tonic effect of new blood. Donors should be directly matched rather than selcted by groups. The normal adult blood probably carries a certain amount of natural immunity and as this may vary with the individual it might be well to use different donors if they are available.

J. A. La Nasa, M. D.,
Sec.-Treas.

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# TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

## CALENDAR

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| April 5 | Board of Directors, Orleans Parish Medical Society, 8 p. m. |
| April 5 | Pathologic Conference, Hotel Dieu, 8:15 p. m. |
| April 6 | Eye, Ear, Nose and Throat Hospital Staff, 8 p. m. |
| April 7 | Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m. |
| April 7 | Mercy Hospital Staff, 8 p. m. |
| April 7 | Hutchinson Memorial Clinic Staff, 8 p. m. |
| April 9 | French Hospital Staff, 8 p. m. |
| April 12 | ORLEANS PARISH MEDICAL SOCIETY, 8 p. m. |
| April 14 | Touro Infirmary Staff, 8 p. m. |
| April 15 | Eye, Ear, Nose and Throat Club, 8 p. m. |
| April 16 | I. C. R. R. Hospital Staff, 12 Noon. |
| April 19 | Hotel Dieu Staff, 8 p. m. |
| April 20 | Charity Hospital Staff, 8 p. m. |
| April 21 | Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m. |
| April 21 | Charity Hospital Surgical Staff, 8 p. m. |
| April 26 | Orleans Parish Medical Society. (Meeting dispensed with because of confliction with meeting of Louisiana State Medical Society.) |
| April 26 | House of Delegates, Louisiana State Medical Society, Monroe, La. |
| April 27 | Baptist Hospital Staff, 8 p. m. |
| April 27 | Louisiana State Medical Society, Monroe, La. |
| April 28 | Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m. |
| April 28 | Louisiana State Medical Society, Monroe, La. |

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During the month of March only one regular scientific meeting was held. The regular meeting scheduled for March 8 was dispensed with because of confliction with the sessions of the New Orleans Graduate Medical Assembly. A special joint meeting of the Orleans Parish Medical Society with the New Orleans Graduate Medical Assembly was held Thursday, March 11 at the Hutchinson Memorial. There was a very large attendance at this meeting. The following program was presented:

Advances in Operative Treatment in Carcinoma of the Large Bowel. (Illustrated in Color Motion Pictures and Lantern Slides.)
By:..........Dr. Wm. W. Babcock of Philadelphia.....

Diseases of the Nervous System Producing Dysfunction of Other Organs and Dysfunction of Other Organs Producing or Simulating Diseases of the Nervous System.
By:....................Dr. Lewis J. Pollock of Chicago.

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A special meeting of the Society was called for Thursday, March 4 to hear two visitors from the Mayo Clinic:

Prostatic Resection.
By:..............................Dr. Gershom J. Thompson.

Recent Advances in Anesthesia.
By:..................................................Dr. E. B. Tuohy.

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At the meeting of March 22, Sir Aldo Castellani, Count Chisimaio, and Inspector General of the Italian Army and Navy, gave an illustrated lecture on the "Medical Aspects of the Ethiopian Campaign."

The following Amendment to the By-Laws was presented to the Society at this meeting and will lay over until the next meeting for final action:

### ARTICLE I SECTION 5
### ASSOCIATE MEMBERS

It be amended to include physicians teaching on full time basis in medical schools whose salaries are $1200 a year or less, and physicians in their first year of private practice.

Dr. T. A. Watters spoke on the Principle of Comparison and led the discussion on College Mental Hygiene Problems and Their Relation to the

Development and Adjustment of Personality of the American Council of Guidance and Personnel Associations, which met here on February 17.

Dr. Arthur Vidrine has been appointed a National Regent of the International College of Surgeons, according to a cablegram received on February 17, by Dr. T. J. Dimitry, Regent for Louisiana, from Professor Arnold Jirasek, of Czechoslovakia.

Dr. I. M. Gage addressed the Southeastern Surgical Association in Atlanta.

Dr. Isidore Cohn addressed the Northeast Thirteen Counties Medical Society at their meeting held in Booneville, Mississippi, February 16, on The Differential Diagnosis and Surgical Indications When a Splenomegaly Exists.

Drs. Frederick L. Fenno and Wm. H. Gillentine attended the Dallas Southern Clinical Society which held sessions between March 15 and 18.

Dr. Robert H. Bayley and Dr. Marie Louise Pareti were elected to Active Membership.

Tuesday, March 30, was Doctors' Day, and the Woman's Auxiliary to the Orleans Parish Medical Society again sponsored a party for all doctors and their wives at the Tip Top Inn of the Roosevelt Hotel from 9 p. m. to 1 a. m. Tables were provided for bridge and refreshments were served throughout the evening. An excellent orchestra provided music for dancing.

## TREASURER'S REPORT

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|---|---|
| ACTUAL BOOK BALANCE: 1/30/37: | $2,636.04 |
| February Credits: | $1,740.14 |
| TOTAL CREDITS: | $4,376.18 |
| February expenditures: | $1,070.68 |
| ACTUAL BOOK BALANCE: 2/27/37: | $3,305.50 |

## LIBRARIAN'S REPORT

The Library has loaned to doctors 808 books and journals during February, or more than 1½ to each member of the Society. In addition, 751 items have been loaned to students for overnight use, making a total of 1,559. These figures do not include the great use of books and journals within the Reading Rooms.

During February, 66 volumes have been added to the Library. Of these 27 were received by binding, 20 by gift, 1 by purchase and 18 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is given below.

On request of physicians, members of the staff have collected material on the following subjects during the month:

Lipiodol and vaccine treatment of chronic bronchitis.
The practitioner vs. the specialist.
Disorders of sleep.
Coley's toxin.
Subenon.
Etiology of contracture of the tendon.
Calcification of the mitral valve.
Myasthenia gravis.
Carcinoma of lung.
Myclosene.
History of gynecology.
Pneumonia in diabetes.
Diarrheas.
Endocrine factor in the etiology of purpura hemorrhagica.

## NEW BOOKS—FEBRUARY

Hotel Dieu Staff—Collected Papers. 1936.
American Otological Society—Transactions. 1936.
North Carolina Medical Society—Transactions. 1921-22, 1934-25, 1927, 1929-35.
Practitioner's Library of Medicine and Surgery. v. 11. 1937.
McGregor, A. L.—Synopsis of Surgical Anatomy. 1934.
Bremer, J. L.—Textbook of Histology. 1936.
Whitnall, S. E.—Study of Anatomy. 1936.
Yearbook of General Medicine. 1936.
Homans, John—Textbook of Surgery. 1936.
Roe, J. H.—Principles of Chemistry. 1936.
International Medical Annual. 1936.
Jackson, Chevalier—Diseases of Food and Air Passages of Foreign Body Origin. 1936.
Jutte, M. E.—You Must Eat Meat. 1936.
Meakins, J. C.—Practice of Medicine. 1936.
Hess, A. C.—Collected Writings. 2v. 1936.
Moynihan, Sir B. G. A.—Truants. 1936.
Carter, J. B.—Fundamentals of Electrocardiography. 1937.
Ashman, Richard—Essentials of Electrocardiography. 1937.
Carman, W. B.—Digestion and Health. 1936.
Hinton, W. A.—Syphilis and Its Treatment. 1936.
Lecy, R. L. ed.—Diseases of the Coronary Arteries. 1936.

# LOUISIANA STATE MEDICAL SOCIETY NEWS

## SCIENTIFIC PROGRAM

The tentative program arranged for the meeting of the Louisiana State Medical Society at Monroe, April 26-28, 1937, is given below. Certain minor changes may have to be made in this program, but, for the most part, it will stand as outlined.

### SECTION ON BACTERIOLOGY AND PATHOLOGY

Dr. E. von Haam, Chairman
New Orleans

1. The Present Day Conception of Agranulocytic Angina (Lantern Slides)........Dr. H. J. Schattenberg, New Orleans.
   To open Discussion....Dr. M. E. Cox, New Orleans.
2. Paratyphoid Bacilli in Cutaneous and Subcutaneous Lesions. A Report of Seven Cases........Dr. George S. Fasting, New Orleans.
   To open discussion........Dr. J. K. Howles, New Orleans.
3. Fatal Tularemia with Postmortem Examination (Lantern Slides)........Dr. W. R. Mathews, Shreveport.
   To open discussion........Dr. E. von Haam, New Orleans.

### SECTION ON EYE, EAR, NOSE AND THROAT

Dr. L. W. Alexander, Chairman
New Orleans

1. Van-Lint Conjunctival Flap in Cataract Extraction (Moving Picture Demonstration)....Dr. W. B. Clark and Dr. John W. Fish, New Orleans.
   To open discussion....Dr. Olin Moss, Lake Charles.
   Followed by....Dr. Noel T. Simmonds, Alexandria.
2. The Diagnosis and Treatment of Acute Mastoiditis (Lantern Slides)........Dr. Charles L. Cox, New Orleans.
   To open discussion........Dr. Ernest Smith, Minden
   Followed by....Dr. L. W. Alexander, New Orleans.
3. The Relationship of the Specialist to the General Practitioner (Lantern Slides)........Dr. John B. Gooch, New Orleans
   To open discussion........Dr. E. L. Zander, New Orleans.
   Followed by........Dr. L. A. Monte, New Orleans.
4. Surgical Intervention in Acute Laryngeal Obstruction........Dr. C. B. Flinn, Monroe.
   To open discussion........Dr. Francis E. LeJeune, New Orleans.
   Followed by........Dr. L. L. Shlenker, Monroe.
5. Infections of the Middle Ear........Dr. J. T. Crebbin, Shreveport.

### SECTION ON GASTRO-ENTEROLOGY

Dr. J. E. Knighton, Jr., Chairman
Shreveport

1. Diverticulosis and Diverticulitis of the Intestinal Tract (Lantern Slides)........Dr. T. P. Lloyd, Shreveport.
   To open discussion....Dr. M. W. Hunter, Monroe.
2. Pellagra Secondary to Lesions of the Gastro-Intestinal Tract....Dr. W. M. Scott, Shreveport.
   To open discussion........Dr. D. N. Silverman, New Orleans.
   Followed by........Dr. W. R. Mathews, Shreveport.

### SECTION ON GENERAL SURGERY

Dr. John G. Snelling, Chairman
Monroe

1. Head Injuries........Dr. C. P. Gray, Monroe.
   To open discussion........Dr. Alton Ochsner, New Orleans.
2. Reconstructive Surgery as Allied with the Treatment of Cancer....Dr. Neal Owens, New Orleans.
   To open discussion........Dr. W. R. Mathews, Shreveport.
3. Non-Tuberculous Lung Abscess (Lantern Slides)........Dr. J. D. Rives, New Orleans.
   To open discussion........Dr. H. L. Kearney, New Orleans.
4. Delayed Operation for Acute Hematogenous Osteomyelitis........Dr. Howard Mahorner, New Orleans.
   To open discussion........Dr. J. Q. Graves, Monroe.
5. Air-way and Air-ways in Relation to General Anesthesia....Dr. Ansel M. Caine, New Orleans.
   To open discussion........Dr. Alton Ochsner, New Orleans
6. Roentgen Rays and Their Use in the Treatment of Skin Diseases........Dr. M. T. Van Studdiford, New Orleans.
   To open discussion........Dr. J. W. Tedder, New Orleans.
7. Acute Pancreatitis........Dr. Warren H. Cole (Guest), Chicago, Ill.
   To open discussion........Dr. Walter Moss, Lake Charles.

### SECTION ON GYNECOLOGY AND OBSTETRICS

Dr. H. B. Alsobrook, Chairman
New Orleans

1. Pelvic Conditions Simulating Appendicitis........Dr. Jean Paul Pratt (Guest), Detroit, Mich.
   To open discussion........Dr. H. W. Kostmayer, New Orleans.
   Followed by....Dr. Lucien LeDoux, New Orleans.
2. Evolution of Gynecology........Dr. Wm. D. Phillips, New Orleans.
   To open discussion........Dr. C. P. Gray, Sr., Monroe.
   Followed by........Dr. T. Sellers, New Orleans.
3. Diagnosis, Indications and Technic of Vulvectomy (Lantern Slides)........Dr. O. C. Rigby, Shreveport.
   To open discussion........Dr. W. R. Mathews, Shreveport.

Followed by....Dr. Walter E. Levy, New Orleans.

4. Epidural and Sacral Anesthesia in Gynecology and Obstetrics......
......Dr. Peter Graffagnino, New Orleans.
To open discussion......
......Dr. C. B. Odom, New Orleans.
Followed by....Dr. H. Vernon Sims, New Orleans.

## SECTION ON MEDICINE AND THERAPEUTICS

Dr. Robert Bernhard, Chairman
New Orleans

1. Cardiac Emergencies—Bedside Diagnosis and Treatment......
......Dr. Ben R. Heninger, New Orleans.
To open discussion......
......Dr. George W. Wright, Monroe.
2. Factors Delaying the Diagnosis of Pulmonary Tuberculosis (Lantern Slides)....Dr. Louis A. Monte and Dr. Oscar Blitz, New Orleans.
To open discussion......
......Dr. Morell W. Miller, New Orleans.
3. The Cause of Dyspepsia at Various Ages (Lantern Slides)......Dr. Andrew B. Rivers, (Guest), Rochester, Minn.
To open discussion......
......Dr. Allan Eustis, New Orleans.
4. The Value of Diuretics in Edema (Lantern Slides)......Dr. Randolph Lyons, New Orleans.
To open discussion......
......Dr. O. W. Bethea, New Orleans.
5. Some Common Conditions Influencing the Heart
......Dr. Melville W. Hunter, Monroe.
To open discussion......
......Dr. B. J. DeLaureal, New Orleans.
6. Treatment of Bronchial Asthma (Lantern Slides)
......Dr. W. H. Browning, Shreveport.
To open discussion......
......Dr. Ralph Riggs, Shreveport.

## SECTION ON NERVOUS DISEASES

Dr. J. D. Young, Chairman
Shreveport

1. Eye Findings as an Aid in the Diagnosis and Localization of Brain Tumors......
......Dr. L. W. Gorton, Shreveport.
To open discussion......
......Dr. Theodore J. Dimitry, New Orleans.
2. Neurology as an Aid in Diagnosing and Localizing Brain Tumors......
......Dr. L. Roland Young, Covington.
To open discussion......
......Dr. D. H. Duncan, Shreveport.
3. Surgery in Brain Tumors......
....Dr. Ernest L. Sachs (Guest), St. Louis, Mo.
To open discussion......
......Dr. G. C. Anderson, New Orleans.

## SECTION ON ORTHOPEDIC SURGERY

Dr. A. Scott Hamilton, Chairman
Monroe

1. Internal Fixation and Fractures of the Neck of the Femur......Dr. Melvin S. Henderson, (Guest), Rochester, Minn.
To open discussion......
......Dr. John T. O'Ferrall, New Orleans.
Followed by......
......Dr. Frank Brostrom, New Orleans.
2. The Use of Lipiodol in Certain Orthopedic Conditions......
......Dr. George C. Battalora, New Orleans.
To open discussion......
......Dr. E. D. Fenner, New Orleans.
Followed by......
......Dr. Chas. L. Farrington, New Orleans.

## SECTION ON PEDIATRICS

Dr. Herman A. White, Chairman
Alexandria

1. Childhood Tuberculosis......
......Dr. Cecil Lorio, Baton Rouge.
To open discussion......
......Dr. E. A. Socola, New Orleans.
2. Congenital Anomalies of the Rectum as a Factor in Constipation (Lantern Slides)......
......Dr. C. H. Webb, Shreveport.
To open discussion......
......Dr. Julian Graubarth, New Orleans.
3. Treatment of Septicemias in Children with Report of a Case......Dr. Ralph Talbot, Monroe.
To open discussion......
......Dr. C. M. Jarrell, Alexandria.

## SECTION ON PUBLIC HEALTH AND SANITATION

Dr. William H. Perkins, Chairman
New Orleans

Opening Address: "Preventive Aspects of Medical Service Among the Italian Forces in the Ethiopian War"......Sir Aldo Castellani (Public invited).

Scientific Session

1. Modern Trends in Public Health Work in Louisiana......Dr. W. K. Sharp, New Orleans.
2. Lympho-granuloma Inguinale......
Dr. R. D'Aunoy and Dr. E. von Haam, New Orleans.
3. A Practical Tuberculosis Case-finding Program.
Dr. R. A. Brown, (Guest), Montgomery, Ala.

## SECTION ON RADIOLOGY

Dr. L. W. Magruder, Chairman
New Orleans

1. Who Owns the Radiograph?......
......Dr. Lester J. Williams, Baton Rouge.
2. Radiation Therapy in Benign Uterine Hemorrhage......
......Dr. Harold G. F. Edwards, Shreveport.

To open discussion.....Dr. A. G. McHenry, Monroe.
Followed by.....Dr. Paul W. Winder, Shreveport.
3. Phyto-Bezoar of the Stomach Associated with Gastric Ulcer (Lantern Slides).....Dr. C. P. Rutledge, Shreveport.
To open discussion.....Dr. Leon J. Menville, New Orleans.

### SECTION ON UROLOGY

Dr. U. S. Hargrove, Chairman
Baton Rouge

1. Treatment of Carcinoma of the Prostrate (Lantern Slides).....Dr. Eugene B. Vickery, New Orleans.
To open discussion.....Dr. W. A. Reed, New Orleans.
Followed by.....Dr. U. S. Hargrove, Baton Rouge.
2. Some Urological Problems in General Practice (Lantern Slides).....Dr. H. W. E. Walther and Dr. R. M. Willoughby, New Orleans.
To open discussion.....Dr. I. B. Rougon, Shreveport.
Followed by.....Dr. D. T. Milam, Monroe.

### THE PRESIDENT

Hiram Watkins Kostmayer was born in New Orleans in 1883. His preliminary training was in the public schools in that city, after which he attended Tulane University, receiving the B. A. degree therefrom in 1904. After his M. D. degree from Tulane in 1909 he served two years as interne in Charity Hospital, New Orleans.

After his internship be became Instructor in Gynecology at Tulane and continued in this position through 1915. The next year he was appointed House Surgeon of Charity Hospital from which he resigned to take charge of The Illinois Central Hospital. Finding that this took too much time from his main work, he resigned to devote his entire efforts to gynecology, accepting the appointment as Professor of Gynecology in the Post Graduate School of Tulane, a position he still holds.

Three years ago he became Dean of this school and continues in that office. He is a member of the American College of Surgeons, The American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, and is a Diplomat of the American Board of Obstetrics and Gynecology.

Dr. Kostmayer was President of the Orleans Parish Medical Society in 1934.

### THE PRESIDENT ELECT

Dr. Charles Manly Horton was born in Lowndesville, South Carolina, on October 3, 1879. He graduated with the degree of A. B. from Furman University in 1898. For a period of eight years succeeding his graduation from college he was in the railroad business and had a responsible position for such a young man as a train inspector. The lure of medicine had been in his mind for years so that he entered Tulane University Medical School, to graduate in 1911. Succeeding his graduation he served two years as an interne at the Charity Hospital and then went to Franklin, Louisiana, where he has been engaged in general practice since that time. Dr. Horton has had many positions of responsibility, trust and honor. For twelve years he was coroner of St. Mary Parish and City Health Officer of Franklin. In his local Parish Society he has been president and he has been president also of his District Medical Society. In 1932 he was honored by the State Society by being elected second-vice president and last year he was made Chairman of the House of Delegates.

HIRAM W. KOSTMAYER, M. D.

### THE ANNUAL ORATOR

Dr. Morris Fishbein was born in St. Louis, July 22, 1889. He is editor of The Journal of the American Medical Association; editor of Hygeia, the Health Magazine; associate clinical professor of medicine, University of Chicago; lecturer on history of medicine, University of Illinois; member of the Council on Pharmacy and Chemistry, the Council on Physical Therapy, the Council on Scientific Assembly, and chairman of the Committee on Foods of the American Medical Association.

He is author with Dr. George H. Simmons of

MORRIS FISHBEIN, M. D.

"The Art and Practice of Medical Writing"; author with Dr. Oliver T. Osborne of the '"Handbook of Therapy". Editor of "Your Weight and How to Control It"; editor with Dr. William A. White of "Why Men Fail". He is also author of "The Medical Follies," "The New Medical Follies," "Shattering Health Superstitions," "The Human Body and Its Care," "An Hour on Health," "Doctors and Specialists" and "Fads and Quackery in Healing." He has made many significant contributions to medical and lay literature, his most recent articles appearing in the Saturday Evening Post. Dr. Fishbein is editor of the Bulletin of the Society of Medical History of Chicago. He is a member of the American Public Health Association, Chicago Pathological Society, Institute of Medicine, American Association for the Advancement of Science, and a Fellow of the American Medical Association. He is a member of the Standard Club, Tavern Club and the Quadrangle Club. Dr. Fishbein conducts a health column syndicated by NEA service in over two hundred newspapers.

Dr. Fishbein received his B. Sc. degree from the University of Chicago in 1910, and his M. D. degree from Rush Medical College in 1912. At the time of graduation, he received the Alumni Fellowship in Pathology and became associated with Drs. Ludvig Kektoen and E. R. LeCount, publishing several papers of a medical research character. He also served as house physician in the Durand Hospital of the McCormick Institute for Infectious Diseases, 1912-1913. In August, 1913, following the death of Dr. E. R. Hyde, he became assistant to Dr. George H. Simmons, editor of The Journal of the American Medical Association, which position he held up to 1924, when he was elected editor to succeed Doctor Simmons.

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### CONCORDIA-CATAHOULA BI-PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. H. H. Ratcliffe, Ferriday.

Vice-President—Dr. J. P. Durham, Jonesville.

Secretary-Treasurer—Dr. John Schreiber, Vidalia.

Delegate—Dr. H. H. Ratcliffe, Ferriday.

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### ST. MARY PARISH MEDICAL SOCIETY OFFICERS, 1937.

President—Dr. J. T. Prosser, Morgan City.

Secretary-Treasurer—Dr. Ford S. Williams, Franklin.

Delegate—Dr. Guy G. Aycock, Patterson.

Alternate—Dr. T. H. Gueymard, Morgan Cty.

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### ASCENSION PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. D. C. Brumfied, Darrow.

Vice-President—Dr. H. A. Folse, Donaldsonville.

Secretary-Treasurer—Dr. Myer Epstein, Gonzales.

Delegate—Dr. D. T. Martin, Donaldsonville.

Alternate—Dr. H. A. Folse, Donaldsonville.

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### WASHINGTON PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. J. S. Desporte, Bogalusa.

Vice-President—Dr. A. F. Adair, Bogalusa.

Secretary-Treasurer—Dr. F. A. Williams, Franklinton.

Delegate—Dr. A. W. Martin, Bogalusa.

Alternate—Dr. W. W. Fleming, Bogalusa.

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### TERREBONNE PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. R. W. Collins, Houma.

Vice-President—Dr. J. B. Duval, Houma.

Secretary-Treasurer—Dr. S. F. Landry, Houma.

Delegate—Dr. M. F. Houston, Houma.

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### RAPIDES PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. I. N. Adams, Pineville.

First Vice-President—Dr. A. J. Morat, Colfax.

Second Vice-President—Dr. O. B. Owens, Alexandria.

Secretary-Treasurer—Dr. M. B. Pearce, Alexandria.

## CALCASIEU PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. T. C. Moody, Lake Charles.

Vice-President—Dr. Walter Moss, Lake Charles.

Secretary-Treasurer—Dr. Eleanor Cook, Lake Charles.

Delegates—Drs. Robert Howell and Walter Moss, Lake Charles.

## EAST AND WEST FELICIANA BI-PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. S. L. Shaw, Clinton.

Vice-President—Dr. W. J. Roberts, Felixville.

Secretary-Treasurer—Dr. E. M. Toler, Clinton.

Delegate—Dr. T. H. Pargen, Jackson.

## MOREHOUSE PARISH MEDICAL SOCIETY OFFICERS, 1937

President—Dr. W. W. Poimboeuf, Bastrop.

Vice-President—Dr. J. N. Jones, Bastrop.

Secretary-Treasurer—Dr. F. B. Ogden, Bastrop.

Delegate—Dr. W. A. Rodgers, Bastrop.

Alternate—Dr. M. W. Owens, Bonita.

## SHREVEPORT MEDICAL SOCIETY OFFICERS, 1937

President—Dr. W. B. Heidorn, Shreveport.

First Vice-President—Dr. R. T. Lucas, Shreveport.

Second Vice-President—Dr. W. J. Sandidge, Shreveport.

Secretary—Dr. P. D. Abramson, Shreveport.

Treasurer—Dr. D. R. McIntyre, Shreveport.

Historian—Dr. J. M. Bodenheimer, Shreveport.

Delegates—Drs. J. T. Crebbin, W. S. Kerlin, R. T. Lucas, O. C. Rigby, C. P. Rutledge, J. G. Yearwood, all of Shreveport.

## FOURTH DISTRICT MEDICAL SOCIETY

The meeting of the Fourth District Medical Society was held in the dining room of the Shreveport Charity Hospital on October 6, 1936. Throughout dinner, members and visitors were entertained by the Gilliam Negro Quintet, whose services were secured by Dr. Guy Caldwell.

The scientific program was presided over by the president, Dr. Wilkins McDade of Minden. Dr. H. W. Kostmayer, President of the Louisiana State Medical Society and a guest of the meeting, reported the progress made by the Lobby Committee in Baton Rouge in having certain laws, detrimental to organized medicine, killed in committee. He also called attention to the progress made in Maternal Welfare throughout the State of Louisiana.

Dr. J. P. Sanders of Caspiana presented a very interesting paper on impotence, outlining the different types and stressing the treatment of each type. Dr. J. R. Stamper opened the discussion and showed a motion picture illustrating a new suction type of treatment for undescended testicles. Dr. Robert A. Strong, Professor of Pediatrics at Tulane University and guest speaker at the meeting, presented an outline talk and moving picture of vomiting in infancy. The discussion was opened by Dr. R. T. Lucas of Shreveport. Dr. George Wolfe presented a case of Schuler-Christian's disease from the pediatric service of the Shreveport Charity Hospital.

Following the scientific program, officers were elected by acclamaton for the following year, 1937:

President—Dr. S. A. Tatum, Homer.

Vice-President—Dr. J. B. Hall, Benton.

Secretary-Treasurer—Dr. C. Raymond Mays, Shreveport.

T. M. Oxford, M. D., Sec.

## FOURTH DISTRICT AND SHREVEPORT MEDICAL SOCIETY MEETING

The joint meeting of the Fourth District Medical Society and the Shreveport Medical Society was held in the assembly room of the Shreveport Charity Hospital, March 2, 1937. Fifty-one members and two guests were present. The meeting was called to order by Dr. W. B. Heidorn. The chair was then turned over to past president, Dr. Wilkins McDade of Minden, Louisiana, who presided. The guest speaker, Dr. Ambrose Storck, from the Department of Surgery, Tulane University, was introduced by Dr. Paul D. Abramson. Dr. Storck presented a detailed, instructive discussion of "Surgery of the Sympathetic Nervous System". He pointed out its application and limitations in various special fields of medicine and the technic of approach for section and injection of some of the more commonly accepted methods of approaching sympathetic branches. The paper was discussed by Drs. Paul D. Abramson and O. C. Rigby.

C. R. Mays, M. D., Sec.

## TRI-PARISH MEDICAL SOCIETY MEETING

The regular meeting of the Tri-Parish Medical Society was held at Lake Providence on March 2, 1937. Those present included Drs. J. P. Davis, President, Lake Providence, W. H. Hamley, B. J. Aymond and G. S. Hopkins, Lake Providence, W. McG. Dollerhide, Daniel W. Kelly, E. D. Butler and Fritz A. LaCour of Oak Grove, B. L. Bailey of Epps, G. W. Gaines, E. O. Edgerton and H. S. Provine of Tallulah, Guy L. Odom of East Louisiana Hospital, Jackson, A. D. Tisdale and W. L. Smith of Monroe, William K. Evans of St. Joseph.

Dr. Guy L. Odom of East Louisiana Hospital at Jackson read a paper on "General Paralysis of the Insane and Treatment by means of Artificial Fever Therapy." This paper was discussed by Drs. Hamley, Evans, Gaines, Smith, Edgerton, Tisdale, Provine, Aymond, Hopkins and Odom.

Dr. A. D. Tisdale of Monroe read a paper on "Abdominal Conditions with Special Reference to Diagnosis." The paper was discussed by Drs. Smith, Hopkins, Bailey and Tisdale.

Dr. W. L. Smith of Monroe presented a paper, "Roentgen Ray Pictures and Discussion of Intra-abdominal Conditions," which was discussed by Drs. G. S. Hopkins and B. L. Bailey.

Dr. William K. Evans, Director of the Parish Health Unit or Tensas, domiciled at St. Joseph, invited the members to meet on the first Tuesday of April at Newellton, in Tensas Parish. The invitation was accepted by unanimous vote.

Drs. W. McG. Dollerhide and Fritz A. LaCour paid 1937 dues.

The question of an Auxiliary to the Tri-Parish Society was brought up and, on motion of Dr. Edgerton, Mrs. William H. Hamley was instructed to organize the parishes and establish an Auxiliary.

William H. Hamley, M. D., Sec.

## THE SOUTHEASTERN SURGICAL CONGRESS

The eighth annual assembly of this organization was held in Charlotte, N. C., March 8-10. Some of the outstanding surgeons in the country were on the program. Dr. Mims Gage of New Orleans was one of those who spoke, his subject being "Surgical Treatment of Peptic Ulcer."

Our late and honored colleague, Dr. C. Jeff Miller, has had a Lectureship dedicated to his memory in view of his contributions to surgery, his public benefactions and his untiring work for and his interest in, the Southeastern Surgical Congress. The Jeff Miller Memorial Lecture this year was delivered by Dr. W. D. Haggard, former President of the American Medical Association.

## INTERNATIONAL COLLEGE OF SURGEONS

The United States Chapter of the International College of Surgeons has changed the date of the meeting in New York City to June 1-2, 1937.

Assistant Surgeon Charles M. McGill has been relieved from duty, U. S. Quarantine Station, Boston, Mass., March 6, 1937, and is to proceed to U. S. Quarantine Station, New Orleans, (Algiers), La., for duty.

## INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the State, which contain the following summarized information: For the week ending February 20, there were reported to the State Board of Health, through the Bureau of Epidemiology, a very large number of cases of influenza, 375 being listed for the week; a considerable number of pneumonia cases, 77 being listed, were likewise reported. In addition to these two important diseases, there were reported 62 cases of syphilis, 28 of pulmonary tuberculosis, 16 each of gonorrhea and cancer, 15 of whooping cough and 13 of diphtheria. Of the other diseases, 5 cases of tularemia occurred in five different parishes; a case of poliomyelitis was discovered in Sabine Parish and 1 of septic sore throat in Claiborne Parish. During the week ending February 27, influenza still appeared in epidemic proportions, when 389 new cases were reported. Pneumonia was way up in the sky with 91 cases, and there was considerable increase in the number of patients first developing pulmonary tuberculosis with 53 names sent to the Bureau of Epidemiology. Other double figure diseases include 32 cases of syphilis, 14 of scarlet fever, 12 each of gonorrhea and diphtheria and 11 of cancer. Four cases of tularemia were reported this week. One case of poliomyelitis was reported from Orleans Parish, and two cases of epidemic cerebrospinal meningitis, 1 from Orleans and 1 from West Carroll Parish. For the week ending March 6, the influenza epidemic seemed to be waning when only 143 cases were listed. However, pneumonia increased to 105, while pulmonary tuberculosis fell to 30 reportable cases. There were also listed the following diseases in double figures: 35 cases of gonorrhea, 24 of syphilis, 23 of cancer, 14 of diphtheria and 11 of chickenpox. Of the unusual diseases, a case of smallpox was reported from Caddo Parish, and epidemic meningococcic meningitis originated in Orleans. One case of tularemia was reported in Sabine Parish. For the week ending March 13, the tenth week of the year, influenza jumped up again with a bang, with 366 cases listed. Pneumonia fell to 73 instances, but syphilis increased to 59. There were also listed 26 cases of pulmonary tuberculosis, 21 of gonorrhea, 13 of typhoid fever, 10 each of diphtheria and cancer. Caddo reported one case of tularemia and Orleans one case of epidemic cerebrospinal meningitis.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census, reports that for the week ending February 13, there were 172 deaths in the city of New Orleans, divided 106 white and 66 negro. There occurred 13 deaths in children under one year of age. For the next week, closing February 20, there were 20 more deaths than the previous week. Of these 192 deaths, 119 were white and 73 negro. The deaths of 12 infants under one year of age were reported. There was a slight decrease for the week ending February 27, 182 deaths being reported, of whom 127 came from the white and 55 from the negro population. Infant deaths increased to 19. For the last week for which figures are available, namely that of March 6, there was a considerable drop in the total number of deaths, when 165 were reported, divided 114 white and 51 negro. There were 14 instances of death in infants under one year of age. So far these first nine weeks of the year, in spite of the severe influenza epidemic with its accompanying high morbidity, show 1,536 deaths reported in New Orleans, as contrasted with 1,631 for the period in 1936.

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## SOCIAL SECURITY BOARD APPROVES NEW LOUISIANA PUBLIC ASSISTANCE PLANS FOR AID TO NEEDY AGED, BLIND AND DEPENDENT CHILDREN

Approval of Louisiana's new plans for public assistance to the needy aged, the blind, and dependent children was announced by the Social Security Board today. These plans, which coordinate public-assistance activities under the recently created State Department of Public Welfare, supplant those already in operation under the Louisiana Emergency Relief Administration.

The new plans place public assistance on a permanent basis but involve no other major changes. The State's programs for aid to the needy aged and to dependent children, which have been in operation since June, 1936, will be continued. A plan for aid to the needy blind was approved by the Board in November, but up to the present quarter the State had not requested a Federal grant under it. The original plans were set up on a temporary basis pending the passage of further welfare legislation. Through action by the legislature and the ratification of a constitutional amendment at the general election in November, the present State Department of Public Welfare was created and made responsible for the three public-assistance programs, as well as for certain other welfare activities.

The new department now assumes the duties formerly carried on by the Emergency Relief Administration. In relation to public assistance it will supervise administration of the three programs by the parish departments of public welfare. The parishes, as well as the State, will participate in financing public assistance. For aid to the needy aged and needy blind the Federal Government contributes approximately one-half of the State's total expenditures, and for aid to dependent children, one-third.

Louisiana is aiding about 14,700 needy old people and 18,000 dependent children in 6,020 families in March, according to estimates based on reports to the Board since the State's plans became effective. Average payments to individuals for March are estimated at $12.33 for the aged and $7.81 for dependent children. According to estimates of State officials, 600 needy blind persons will be assisted with average individual payments of $15 a month.

## MAY DAY—CHILD HEALTH DAY 1937

Saturday, May First

Suggestion for Observance

The Children's Bureau sponsors May Day—Child Health Day activities at the request of the State and Provincial Health Authorities of North America and in accordance with the Congressional Resolution of May 18, 1928, authorizing the President to proclaim May Day as Child Health Day.

Slogan: Health protection for every child.

Objective: To promote the extension of year-round child-health services in every community, including services for physically handicapped children.

Leadership: State May Day chairmen will be appointed by State health officers to plan the State Child Health Day program and to arrange for the cooperation of organizations concerned with child health.

State departments of education will be asked to cooperate by planning and directing school Child Health Day programs.

Program: For community groups—(1) an evaluation of child-health services in the community based on a survey of existing child-health conditions and organization to promote child health, (2) the launching of new local child-health projects, and (3) exhibits or programs celebrating gains made.

For children—as a climax for the year's health program—festivals, athletic contests, programs, exhibits celebrating children's growth, vigor, and safety from health hazards.

State and local news stories, radio talks, and speeches.

Requests for information on State programs or for further material should be sent to May Day chairmen in State health departments.

Katherine F. Lenroot, Chief.

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## WOMAN'S AUXILIARY

### Louisiana State Medical Society

President—Mrs. James Byron Vaughan, Monroe.

President-Elect—Mrs. George D. Feldner, New Orleans.

First Vice-President—Mrs. F. G. Ellis, Shreveport.

Second Vice-President—Mrs. T. H. Watkins, Lake Charles.

Third Vice-President—Mrs. E. B. Middleton, Homer.

Fourth Vice-President—Mrs. R. R. Arceneaux, Welsh.

Recording Secretary—Mrs. C. Gremes Cole, New Orleans.

Corresponding Secretary—Mrs. Joseph P. Brown, Monroe.

Treasurer—Mrs. Courtland P. Gray, Monroe.

Parliamentarian—Mrs. R. T. Lucas, Shreveport.

### The Annual Meeting Headquarters and Meetings of the Auxiliary to the Louisiana State Medical Society

### VIRGINIA HOTEL

Registration Desk—Lobby, First Floor

Mrs. Joseph P. Brown General Chairman

**Chairmen of Sub-Committees**

| | |
|---|---|
| Registration and Credentials | Mrs. A. G. McHenry |
| Badges and Printing | Mrs. A. L. Peters |
| Tickets | Mrs. J. Pracher |
| Program | Mrs. A. D. Tisdale |
| Information | Mrs. I. W. Woiff |
| Supplies | Mrs. C. H. Hill |
| Transportation | Mrs. C. U. Johnson |
| Publicity | Mrs. A. Scott Hamilton |
| Exhibits | Mrs. D. T. Milam |
| Luncheons | Mrs. R. W. O'Donnell |
| Pages | Daughters of Doctors |
| Flowers | Mrs. D. I. Hirsch |
| Boat Ride | Mrs. J. Q. Graves |
| Finance | Mrs. R. W. O'Donnell |

**Chairmen of Hospitality and Reception**

Mrs. W. L. Bendel
Mrs. F. C. Bennett
Mrs. J. P. Brown
Mrs. E. G. Calvert
Mrs. Hanson Coon
Mrs. J. Q. Graves
Mrs. C. P. Gray
Mrs. A. B. Gregory
Mrs. H. E. Guerriero
Mrs. C. H. Hill
Mrs. D. I. Hirsch
Mrs. Wm. Guerriero
Mrs. C. U. Johnson
Mrs. A. G. McHenry
Mrs. M. A. McHenry
Mrs. C. L. Mengis
Mrs. D. T. Milam
Mrs. D. M. Moore
Mrs. R. W. O'Donnell
Mrs. P. L. Perot
Mrs. A. L. Peters
Mrs. J. Pracher
Mrs. F. P. Rizzo
Mrs. A. Scott Hamilton
Mrs. L. L. Shlenker
Mrs. John Snelling
Mrs. A. D. Tisdale
Mrs. J. B. Vaughan
Mrs. J. E. Walsworth
Mrs. Douglas Williams
Mrs. I. J. Wolff
Mrs. G. W. Wright
Mrs. E. R. Yancey
Mrs. J. H. Pankey
Mrs. B. M. McKoin

### TUESDAY, APRIL 27, 1937

10:30 a. m. Invocation—Rabbi Hirsch.
Pre-Convention Board Meeting, Virginia Hotel, Crystal Ball Room. Mrs. Frederick G. Ellis, Vice-President of the Auxiliary to the Louisiana Medical Society, presiding.

1:00 p. m. Auxiliary Luncheon at Virginia Hotel.

3:30 p. m. to 5:30 p. m. Boat Ride.

8:00 p. m. Open Meeting and President's Reception.

### WEDNESDAY, APRIL 29, 1937

9:00 a. m. General Session of Auxiliary, Mrs. Frederick G. Ellis, Vice-President, presiding. Crystal Ball Room, Virginia Hotel.
Invocation: Rev. W. C. Scott.
Welcome Address: Mrs. C. P. Gray.
Response to Address of Welcome: Mrs. Robt. T. Lucas.
Memorial Service: Mrs. D. M. Moore.
Reading of minutes.
Reports: State Officers; State Committees; Parish Auxiliaries; Special Committees.
Reports of Woman's Auxiliary to American Medical Association.
Report of Woman's Auxiliary to Southern Medical Association.
Recommendations of Executive Board.
New Business.
Reports of Nominating Committee.
Election of Officers.
Introduction of New Officers.
Announcements by New President, Mrs. Geo. D. Feldner.
Adjournment.

1:00 p. m. Luncheon, Virginia Hotel Roof.

3:00 p. m. Post-Convention Board Meeting, Mrs. George D. Feldner, President of Auxiliary to Louisiana State Medical Society, presiding. Crystal Ball Room, Virginia Hotel.

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### "DOCTOR'S DAY" Programs

Orleans Parish: Cocktail party from 9 p. m. to 1 a. m. in the Tip Top Inn of the Roosevelt Hotel.
Refreshments, dancing, floor-show, bridge and novel features of acquainting guests with each other.
Radio talks and newspaper editorials.
Editorial in "The Orleans Parish Medical Society Bulletin."

Calcasieu Parish: Radio talk by a prominent lawyer, March 28.
Editorial in local paper.
Announcements from the pulpits by various ministers the Sunday preceding March 30.
Dinner-party on the night of March 30, at the Majestic Hotel at 7 p. m., for doctors and their wives of both the Calcasieu Parish and Jefferson Davis Parish auxiliaries.
Unmarried doctors and women doctors to be guests of the two parish auxiliaries.

Ouachita Parish: Editorial in newspapers honoring doctors.
Open house for doctors and their wives in the evening of March 30. Boutonnieres and flowers to be sent to each doctor on the morning of the 30.

Claiborne Parish: Preachers of the various churches will be asked to give special talk as a tribute. Local papers will also carry an editorial. The public will be asked either to send a card or flowers to their physician on "Doctor's Day."

Jefferson Davis Parish: Will join Calcasieu by giving a banquet to the doctors of the two parishes. Will also have editoials in papers.

Caddo Parish: Plans to have an expression from the people of the city, not from the members of the auxiliary, by means of editorials in the local papers—The Shreveport Times and The Shreveport Journal. A radio talk on Medical Science will be given by a citizen of the city. The inactive physicians will be remembered by visits and flowers on March 30.

### JEFFERSON DAVIS PARISH

The Jefferson Davis Parish Medical Auxiliary met in March at the home of Mrs. L. E. Shirley in Jennings.

The following officers were elected:

President—Mrs. G. W. Remage, Jennings.

Vice-President—Mrs. John M. Whitney, Jennings.

Secretary—Mrs. R. R. Arceneaux, Welsh.

Treasurer—Mrs. J. G. McClure, Welsh.

Mrs. Claude A. Martin,
Publicity Chairman.

### CADDO PARISH

The medical auxiliary to the Shreveport Medical Society met in the home of Mrs. W. L. Howell on Wednesday, the tenth. Our business meeting, presided over by the President, Mrs. R. T. Lucas, was unusually interesting, as a great portion was given over to discussion of the annual state meeting to be held next month in Monroe.

The guest speaker for the afternoon was Dr. J. M. Gorton who gave a most interesting and enlightening talk on syphilis.

Mrs. W. R. Mathews,
Publicity Chairman.

### ORLEANS PARISH

The Woman's Auxiliary to the Orleans Parish Medical Society had the pleasure of entertaining the wives of the visiting doctors to the New Orleans Graduate Medical Assembly at their March meeting, as well as the wives of army and navy doctors living in New Orleans.

Mrs. George D. Feldner, local and State "Doctor's Day" Chairman, gave an interesting report the auxiliaries throughout the state in celebration on the various types of parties being planned by of this very momentous occasion and reported that from all indications, the local party is going to go over in a big way.

Mrs. Edgar Burns,
Publicity Chairman.

### IMPORTANT!!!

May I remind Auxiliary Presidents and Committee Chairmen please to comply with Mrs. Vaughan's request to get your reports in to her by April 6? This is most important.

Judging from whispers drifting down to us from Monroe, this is going to be a great meeting in April, so plan to be there, as many of you as can. You will not want to leave the hospitality and sincere warmth of friendliness that awaits you. So do lets show our appreciation to the hostess auxiliary by having as large an attendance as we can muster.

Mrs. George D. Feldner,
Chairman Press and Publicity.

## BOOK REVIEWS

*Urology*: By Edward L. Keyes, Ph. D., F. A. C. S., F. R. C. S. (Hon. England), and Russell S. Ferguson, A. B., M. D. Sixth edition. New York, D. Appleton-Century Co., Inc., 1936. pp. 707. Price $10.00.

The sixth edition of Urology by Edward L. Keyes and Russell S. Ferguson is a revision of Urology previously written by Edward L. Keyes. Although the general scheme of the previous edition has been followed, new chapters have been added and all of the old ones have been rewritten. Certain chapters, including the anatomy and embryology, not relating to practice, have been omitted.

Changing concepts, particularly relative to intravenous urography, prostatic resection, calculogenesis, tuberculosis, tumor and irradiation therapy are attractive additions to the new volume. Probably the most impressive of the new chapters are those dealing with neoplastic diseases; they include biopsy and irradiations and cover the kidney, bladder, prostate, urethra, seminal vesicle, spermatic cord, penis, scrotum and testis. A short summary of the indications for and a description of operative procedures is given. The edition contains urologic principles and advice germinating from an experience antedating 1900. The elementary principles are particularly beneficial, easy to comprehend and undoubtedly useful to all contemplating the use of urologic instruments.

Discussions are limited and are notably absent on mooted points. References are not given and for the reason that they are impractical in a one-volume text.

The chapters are written in a concise, clear, flowing style, popular with the average reader.

Urology is a practical volume and of value to the student and general practitioner. It may be used as a reference inasmuch as the opinions of Keyes and Ferguson are highly respected.

John G. Menville, M. D.

*A Diabetic Manual for Practitioners and Patients*: By Edward L. Bortz, A. B., M. D., F. A. C. P., with a foreword by George Morris Piersol, B. S., M D., F. A. C. P. Philadelphia, F. A. Davis Co., 1936. pp. 217. Price $5.00.

In the author's preface is found the statement that "The present volume has been written with the hope that it may prove useful to the physician, the student, and, most of all, to the patient". Because of this fundamental idea, the Manual suffers from the common defect of simplicity for the patient at the expense of detail for the physician. That the appeal is largely to the patient, is indicated by the glossary in the beginning of the book.

The literature on diabetes has been well covered and reduced to simple statements with appropriate chapters on Pregnancy and Diabetes, Diabetes in Children, Dental Care, Care of the Feet, Complications, and Surgery in Diabetes. There are many charts of food values and equivalents. The customary discussions on the treatment of the diabetic are adequate. Diet therapy and menu planning are treated at some length. The use of protamine insulin is mentioned briefly.

For the intelligent diabetic willing to exert a fair amount of cerebration to understand his illness, this manual is to be recommended.

Sydney Jacobs, M. D.

*Microbiology and Pathology for Nurses*: By Charles F. Carter, B. S., M. D. St. Louis, C. V. Mosby Co., 1936. pp. 682. Price $3.00.

This text has been prepared in two parts, microbiology and pathology and is intended primarily for teaching purposes in nurses' training schools. The subject matter is clearly presented and practical. Highly theoretical and technical material has been omitted. The book has been prepared to follow more or less closely the outline of the Committee on Education of the Natinal League of Nursing Education. An important feature is the inclusion of two rather complete chapters on disinfection and sterilization. The means by which this is accomplished is explained in a thorough manner. Throughout the text the author attempts to explain the spread of disease and further in what way this may be prevented. From the standpoint of a student nurse such a point cannot be too much emphasized. In the part on pathology the author attempts to draw a mental picture of the pathological changes within the body responsible for disease and further correlating these with the clinical findings, or, as Dr. Carter states, "symptoms are but the outward expressions of internal derangements". The subject matter in this book is not presented in a manner which is too technical but in such a simplified way that it may readily be understood by the student nurse. The price of this text is unusually reasonable, especially since it is published in two parts, microbiology and pathology.

H. J. Schattenberg, M. D.

*The Art of Ministering to the Sick*: By Richard C. Cabot, M. D., and Russell L. Dicks, B. D., New York, The Macmillan Company, 1936. pp. 384. Price $3.00.

This book is addressed primarily to ministers although it should be of interest to all who care for the sick. The authors are both excellently well qualified to write upon this subject. That a minister can be a real help to the patient as well as his physician has been only too often demonstrated in the reviewer's experience, but the minister must have some clinical knowledge of illness and the psychology of the sick in order that the alliance between doctor and minister should prove of the greatest help to the sick. Furthermore the doctor should realize that the sick often require more than physical aid, in fact spiritual help may mean the turning point. All ministers who have much to do with the sick should read this book as they will find much information in it which should be of help to them in ministering to the sick.

Randolph Lyons, M. D.

*Oral Diagnosis and Treatment Planning*: By Kurt H. Thoma, D. M. D., Philadelphia, W. B. Saunders Co. 1936. pp. 379-533. Price $6.00

The outstanding value of this thorough, well illustrated work is the method the author has used to attack his subject. It is divided into three parts—1. "The Theory of Diagnosis and Treatment Planning", 2. "Methods of Examination", 3. "Clinical Diagnosis of Dental and Oral Diseases."

Under part one "The Theory of Diagnosis and Treatment" the author discusses examination, diagnosis, prognosis, planning of treatment and final examination.

In part two "Methods of Examination" the author discusses history of patient, physical examination, laboratory tests, and roentgen ray diagnosis and procedures.

Part three "Clinical Diagnosis of Dental and Oral Diseases" comprises three-fourths of the book and contains all of the colored illustrations. The author excels in this section of his work, in the reviewer's opinion, in his method of presentation. First, he has classified various diseases and conditions according to their anatomic relation; then, he has them classified by their most evident symptoms. As an example, one chapter classified according to anatomic relation is titled "Diagnosis of Malformations of the Head and Their Relation to the Face and Jaws", another classified according to most evident symptoms is titled "Diagnosis of Localized Swellings of Oral Muscosa and Lips", which is further divided into such subtopics as "Swellings in Submaxillary Region", "Swelling in Submental Regions", "Inequality of the Two Sides of the Face".

This book should prove to be a valuable reference for the physician as well as the dentist and a most effective, thorough text book for the dental student.

F. Harold Wirth, D. D. S.

*Collected Writings*: By Alfred F. Hess, Springfield, Illinois. Charles C. Thomas, 1936. Price, $15.00.

Very occasionally are there instances in which a man carries along a large private practice and at the same time is a genuine contributor to the branch of medicine in which he specializes. Alfred Fabian Hess was a perfect example of such a man. During the last twenty-five years of his life, which ended suddenly on the evening of December 5, 1933, he published two hundred and thirty-seven papers, everyone of which was a real contribution and served to advance our knowledge of pediatrics. So important were these papers, which were widely scattered in different medical journals over the world, that none other than Dr. William H. Welch suggested that they be collected and published in the two volumes comprising this set. Even though many of his problems had not reached final solution in the articles, much of the material represented original work and observation, and, according to all who have been familiar with these writings previously, were definitely accepted as milestones in the development of the subjects under consideration. Historically, therefore, they will always be valuable sources of information, because so many of them were investigations which opened up leads for others to follow.

Few men were better known or more highly regarded than Alfred Hess. He was perhaps best known for his work on rickets, although he had an enthusiastic interest in all other nutritional diseases. It is generally known that three hundred years ago, Glisson appreciated the value of sunshine, but it remained for Alfred Hess to demonstrate just how this sunshine was beneficial. If he had done nothing else, his name would have endured for all time as the individual responsible for the many substances available at the present time to prevent and cure rickets.

Volume one of this set opens up with a Foreword by his wife, Sara Straus Hess, who acknowledges the help and inscription of Dr. William H. Welch, Abraham Flexner, Dr. Edwards A. Park and Mr. Norman Hapgood. This is followed by a most interesting biography of Dr. Hess written by Abraham Flexner. It traces Dr. Hess' life and brings to light many things about him which, prior to his death, were not known. His methods of work and scientific achievement, as outlined by Mr. Flexner, are inspiring. Quite apart from his interesting investigations, he was one of the first in the United States to realize that no provision had been made for the infant in the tuberculosis program, and his papers and agitation resulted in the founding of the first sanatorium for infants infected with tuberculosis as well as those exposed.

It is indeed most fortunate that the epoch-making contributions of this man have been made available in these volumes, and all who desire a well rounded store of information, especially on nutritional diseases, should read these Collected Writings.

Robert A. Strong, M. D.

*A Dissertation on the Sensible and Irritable Parts of Animals*: By Albrecht vonHaller; with an introduction by Owsei Temkin. Baltimore, The Johns Hopkins Press. 1936. pp. 49. Price $1.00.

This is a reprint of an anonymous English edition of two papers read by Haller before the Royal Society of Sciences of Goettingen on April 22 and May 6, 1752. In these essays, as a result of numerous experiments by himself and his pupils, particularly Johann Georg Zimmermann, Haller makes the clear distinction between sensibility and irritability. Sensibility according to Haller is a property only of those parts supplied by nerves while irritability is an attribute of muscular fibers. Subsequent work has necessitated revision of Haller's original views, but, as Owsei Temkin points out in his able introduction to the present volume, irritability or excitability have remained fundamental physiological conceptions, although their nature is still discussed as it was in Haller's time. Aside from its stimulating effect on the physiologists of that epoch, it is an outstanding document of indefatigable experimentation and of clear reasoning, and as such, is classic.

The excellent format and low price of the present reprint should prove most attractive to those interested in medical history.

H. S. Mayerson, M. D.

*The Surgical Technic of Abdominal Operations*: By Julius L. Spivack, M. D., Chicago, S. B. DeBour, 1936. pp. 718, 677 illus. Price, $10.00.

The primary attributes of a competent surgeon are twofold: first, that innate ability of performing the operation most suited to his patient, surgical judgment; second, an adequate understanding of the technical details of the operative procedure. The former is an abstract quality not gained from texts, the latter a more concrete one that can be transcribed into pictures and words.

Dr. Spivack's book treats solely of the latter. He has presented to the medical world a textbook on abdominal operative procedures. Realizing that word descriptions are at best vague, he has used an important adjunct in the form of numerous illustrations, adequately drawn and clearly demonstrating technical points. These supplement accurate and concise word descriptions wherein a complete procedure is condensed and presented in a minimum amount of space.

His organization of material is based on a logical sequence. The opening chapters deal with fundamentals such as incisions, sutures, and knot tying. Each technical procedure is preceded by a review of the surgical anatomy illustrated by diagrammatic sketches. Anatomical considerations are stressed as the basis of the work. Individual operations are described in sequence, the simpler procedures first with the more complicated ones following. The actual technic is detailed in numbered stages, the diction clear and concise, with important details emphasized in bold face type.

The author has endeavored to give due credit for any new procedure to the more original author or authors, and many chapters contain brief historical resumés. The more recent procedures are emphasized, but when older ones of merit are used they are likewise included. At the end of each chapter is a complete bibliography which is so necessary in surgical literature.

The volume is sturdily bound, of convenient size, and printed in a large and easily readable type. It has value as a reference manual for students of operative surgery and for practicing surgeons. Inclusion of an index would add appreciably to the usefulness of the work.

It is a book not to be relegated to the library shelf, but should occupy a prominent position on every surgeon's desk. The reviewers feel that it is by far the outstanding book of its type of the day. Miss Barthenbach, the artist, deserves a word of praise for having materially added to the appeal of the book.

J. Leonard Dixon M. D.
H. H. Hardy, M. D.

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*Arthritis and Rheumatic Disease*: By Maurice F. Lautman, M. D.; with a foreword by Morris Fishbein, M. D. New York, McGraw-Hill Book Co., Inc. 1936. pp.177. Price $2.00.

This treatise, while written primarily for the purpose of disseminating appropriate information to arthritic patients, or the public who may be interested in the subject, contains most valuable information for the physicians who are students of arthritis. Obviously the writer omitted the complicated discussion concerning the pathology and many factors concerning the etiology of arthritis which has attracted the attention of so many students during the past years. The author should be complimented on his omission of the usual complicated classification of arthritis.

This therefore represents a most intelligent review by one fully competent to speak on the subject and is enlightening to physicians and students desiring some practical and plain facts in reference to the "arthritic problem". It is very unique in its composition and is rather refreshing to one who may be accustomed to reviewing deep scientific physiochemical propositions and other allied scientific facts which have been so conspicuous in the recent literature emanating from clinics and sources where this work has been of such paramount thought during the past several years. In other words it represents a summary, which almost anyone can understand, of the present day conception, treatment and handling of the "arthritic problem".

P. T. Talbot, M. D.

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*Research in Dementia Precox*: By Nolan D. C. Lewis, M. D. New York City, The National Committee for Mental Hygiene. 1936. pp. 320. Price $1.50.

It is very noteworthy that this book is sponsored by a group of laymen with a desire to make a contribution that might advance the understanding of dementia precox and possibly lead to curative measures. In 1934 the Scottish Rite Masons of the Northern Jurisdiction elected to support a research into the cause of dementia precox, and at the suggestion of the National Committee for Mental Hygiene. Dr. Nolan D. C. Lewis was commissioned to undertake the work.

This monograph presents briefly the various aspects of phychiatric investigation in dementia precox, and the problems of research now being carried on to unravel this complex problem is outlined. One of the principal values of this book for anyone wishing to know what has been done in this field is the very complete bibliography. Chapters on the general symptomatology, differential diagnosis, are well written and clearly present the dementia precox syndrome.

This book will be stimulating to anyone who reads it, but it will prove invaluable to those interested in research in dementia precox.

C. S. Holbrook, M. D.

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*Textbook of Obstetrics*: By Edward A. Schumann, A. B., M. D., F. A. C. S. Philadelphia, W. B. Saunders, 1936. pp. 780. Price $6.50.

This is a concise and clearly written textbook, which covers the subject of obstetrics in a most pleasing and acceptable manner. For the sake of brevity, historical data have been eliminated, and the usual verbose discussions of controversial topics have been condensed to the utmost. The author writes in a clear and convincing manner, and one can easily see that he knows whereof he speaks.

The methods of treatment of various obstetrical conditions, as set forth in this volume, are essentially conservative, though the various radical indications are correctly placed. Hence this book is a safe and sane guide to the proper management of obstetrical patients, and is thoroughly up to date in every way.

The illustrations are adequate in amount and quality, and the general make-up leaves nothing to be desired. It is cheerfully recommended as a most excellent, up to the minute presentation of the subject of obstetrics.

E. L. King, M. D.

*Syphilis and Its Treatment*: By William A. Hinton, M. D. New York, The Macmillan Co., 1936. pp. 304. Price $3.50.

Although this is not a voluminous text and is void of photographs and drawings and contains scant bibliography, the author is emphatic in his remarks regarding diagnosis and treatment.

His expressions regarding infectiousness of the disease during its different stages and periods of treatment are very forcibly put.

This is a most useful text for the medical student and general practitioner.

Monroe Wolf, M. D.

*The Study of Anatomy*: By S. E. Whitnall, M. A., M. D., B. Ch. (Oxon.), M. R. C. S., L. R. C. P., F. R. S. (Canada) 3rd ed., revised and enlarged. Baltimore, William Wood and Company. 1936. pp. 113. Price $1.75.

This little volume, which can be read easily over a weekend, is one which should be perused by every medical student early in his first year or with profit even during the summer before beginning medicine. Although the general tone is unnecessarily paternalistic, the advice given is just what every anatomy professor tries to have followed by his students. Gross anatomy is dealt with primarily, although the other branches are correlated with the clinical subjects too. The importance and desirability of students always trying to learn anatomy in relation to its clinical application is emphasized on almost every page; likewise the necessity of teachers of anatomy being men of broad clinical interests. The chapter, "Practical Methods of Study," should be very stimulating to demonstrators and senior students as well as beginners. If his conclusion that "main facts are more important than details" was generally acknowledged by teachers, much of the profitless time spent in anatomy would be used to advantage. He desires that we avoid the modern underemphasis on surface and cross-sectional anatomy. The chapter with appendix concerning collateral reading is admirable, but, at least in the usual American courses of anatomy, there is very little time for the student to browse outside of his assigned text. The reviewer is one of the many who do not agree with his proposal of abolishing all lectures. Certainly everyone does accept wholeheartedly his admonitions with regard to examinations; if students would read this chapter alone and apply its precepts to their work, the book would have served a tremendously useful purpose. The discussion of nomenclature should go far in removing the confusion with which this bugbear confronts the student.

Joseph Thomas Roberts, M. D.

## PUBLICATIONS RECEIVED.

P. Blakiston's Son & Company, Inc., Philadelphia: Recent Advances in Orthopedic Surgery by B. H. Burns, B. A., B. Ch., F. R. C. S., and V. H. Ellis, M. A., B Ch., F. R. C. S.

Columbia University Press, New York: Social Case Recording by Gordon Hamilton. The Social Component in Medical Care by Janet Thornton in collaboration with Marjorie Strauss Knauth.

Paul B. Hoeber, Inc., New York: Light Therapy by Frank Hammond Krusen, M. D., Second Edition, Revised and Enlarged.

Lea & Febiger, Philadelphia: Endocrinology by August A. Werner, M. D., F. A. C. P. An Introduction to Medical Science by William Boyd, M. D., M. R. C. P. (Edin.), F. R. C. P. (Lond.), Dipl. Psych., F. R. S. (Canada).

J. B. Lippincott Company, Philadelphia: International Clinics, Volume I, Forty-Seventh Series, 1937. Edited by Louis Hamman, M. D.

McGraw-Hill Book Company, Inc., New York: Cosmetic Dermatology by Herman Goodman, B. S., M. D. First Edition.

Medical Success Press, Youngstown: A Handbook of Ambulant Proctology by Charles Elton Blanchard, M. D.

The C. V. Mosby Company, St. Louis: Operative Surgery, Volumes I and II, Fourth Edition, by J. Shelton Horsley, M. D., LL. D., F. A. C .S., and Isaac A. Bigger, M. D.

W. B. Saunders Company, Philadelphia: Preoperative and Postoperative Treatment by Robert L. Mason, A. B., M. D., F. A. C. S. The Diseases of Infants and Children, Second Edition, by J. P. Crozer Griffith, M. D., Ph. D., and A. Graeme Mitchell, M. D.

Charles C. Thomas, Springfield: Clinical Roentgenology of the Cardiovascular System by Hugo Roesler, M. D.

University of Pennsylvania Press, Philadelphia: The Development of Modern Medicine by Richard Harrison Shryock.

B. Westermann Company, Inc., New York: The Cure of High Blood Pressure by Respiratory Exercises by Lothar Gottlieb Tirala, M. D., Ph. D.

William Wood and Company, Baltimore: Textbook of Pathology by Sir Robert Muir, M. A., M. D., Sc. D., LL. D., F. R. S.

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# WILL WE BE SAVED?

## PRESIDENTIAL ADDRESS*

HIRAM W. KOSTMAYER, M. D.
NEW ORLEANS

Just a year ago, in Lake Charles, I addressed you as President-elect. The subject was "What Shall We Do To Be Saved?" It was not thought that the pebble hurled at that time into the sea of our serenity would start a tidal wave that would overspread the shores with fruitful activity. But it was a bit disappointing that the result was only an almost imperceptible ripple which lost itself on the surface, leaving the same self-satisfied calm—a calm which may be followed by a storm which will erase all semblance of our present community relationship. As this possibility concerns the public as deeply as it does the profession, it seems proper to discuss it here, briefly.

The statement of a year ago that something must be wrong in the quality, distribution, or cost of medical service appears as true today as it did then. Frequent visits to large and small communities and isolated rural areas in two southern states, including a systematic survey of medical service in one, offer convincing evidence that something is wrong with all three—quality, cost and distribution. It is a frequent, almost uniform complaint of the older physicians in isolated areas that no younger man can be induced to locate there because of lack of facilities for doing his surgery. It is a well-known fact that the respectable middle-waged group of citizens cannot afford the financial burden of modern medical investigation and treatment. It is just as certain, if not so well-known, that a surprisingly few graduates in medicine read their journals, attend medical meetings, or do postgraduate study; in short, keep the quality of their service to the public on the high plane which the public has a right to expect.

In the course of a generation these conditions could be remedied. The glamor and allure of surgery could be withheld from the many by taking operative surgery out of the medical school curriculum. Surely it serves no good purpose for a medical student to gain the exceedingly superficial knowledge which is the most he can acquire by watching operative surgical procedures. He who has a bent for surgery could spend an extra entire year in surgery only, thus fitting him to become an apprentice, while the rest of the class went on into the practice of medicine in general. This would at least have a strong tendency to balance better the distribution of medical service. The middle-waged group could and should be taught that it is just as important to budget for medical care as for house rent, foodstuffs, and other necessities. And continuance of membership in organized medicine or even renewal of license to practice could be made contingent on postgraduate medical study. But these are long-time remedies, and visionary to a degree. In the meantime the agitation proceeds, and short-time if not immediate remedies are being sought.

A year has brought some change in thought about this momentous question. The confidence expressed in the belief that the public and profession do not want "State Medicine" has been severely shaken. There are certainly some profound thinkers in our ranks who believe that it would do away with competition among us for patients and relieve many of the drag of financial worry, thus allowing freedom for more scientific approach to the medical need of the individual. There can be little doubt that in matters of public health and community prevention of disease only government control can be effective. If, as is frequently stated, private health is only less important to the community than community health, it becomes difficult to refute the argument that the health of the individual and the community should be in the same category as education, or police protection, or the conduct of the courts of law.

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*Presidential Address read before the Louisiana State Medical Society at Monroe, Louisiana, April 27, 1937.

Such arguments would not be advanced or, if advanced, would not be seriously considered if the profession even approached the ideal of efficiency. But the acceptance of candidates for the Doctor of Medicine Degree who are not fit for this responsibility, the crowding of the Senior year with operative surgery, the overcrowding of the profession in actual numbers, and the neglect by the profession of postgraduate medical study have all invited an urge for change. Surely, when maternal and fetal mortality remain so appallingly high, the thoughtful among us must welcome any change for the better even if this be brought about by laymen.

As a complete reversal of my position of a year ago, I now see State or Socialized Medicine as a serious threat, whether for better or worse, only time can tell. It seems strikingly apparent that the days of the domination of the many by the very few are ending in all lines of human endeavor. The accumulation of great fortunes is being made more and more difficult, and capital, by grinding labor beneath its heel, has goaded labor into concerted revolt. The fear is that the pendulum may swing entirely too far in the opposite direction. Most physicians have been trained to think and to lead. Why not, then, meet government halfway and attempt to control the new order, if a new order is coming, not only for our own benefit but for the benefit of the public? Perhaps this is the only way to negotiate a transition instead of a revolution in practice, and to keep politics in medical service down to a minimum. Certainly the public is at least as interested as the profession, and only by a frank cooperation between the two can the best be attained.

To me this does not, if accomplished, mean the end of private medical practice. Even should we have Public, or State Medical Service, there will always be demand for private medical service, just as there is now demand for private education though adequate public schools are available. In each generation some of the best minds have devoted themselves to the study of the healing art. This will always be so. There is an allure to the practice of medicine which keeps the conscientious physician struggling on for his patient in the face of any difficulty. I like to believe that it is an inherent love of human kind, which makes life's ultimate goal the universal brotherhood of man. Indeed, it might have been of the "Spirit of Medical Practice" that it was written:

"The stars may fade away
The sun himself grow dim with age and nature
sink in years.
But thou shalt flourish in immortal youth,
Unhurt amidst the war of elements,
The wreck of matter or the crush of worlds."

# FRANCOIS MARIE PREVOST AND THE EARLY HISTORY OF THE CESAREAN SECTION IN LOUISIANA*

**RUDOLPH MATAS, M. D.**
NEW ORLEANS

> To rescue from oblivion the memory of the worthy, to discern between fiction and fact, to judge of merit at its just measure and in its proper light, is the function of the medical historian who would record the achievements which the men of his guild have contributed to the uplift of his order by laboring for the common good in the service of mankind.

### INTRODUCTORY

The history of Nations and States is built largely upon the deeds and achievements of the men and women who, by their leadership and example, have provided the inspiration and material for their tribal organization, for their social evolution, and for the display of those native qualities that are distinctive of the Race or the Nation. From this viewpoint, Louisiana and the vast territory that at one time was embraced under this name, is no exception. The monumental works of Martin, Gayarre, Bancroft, Fortier, Chambers, Grace King, Kendall, Saxon and a host of others, tell the story of the State in the history and romance of the founders who led it out of the wilderness to become one of the proudest units of the great American Commonwealth.

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*Read at the meeting of the Louisiana State Medical Society, Section of Obstetrics and Gynecology, Lake Charles, La., April 28, 1936.

Guided and ruled by the representatives of the three civilizations that have flourished on her soil during the two hundred and fifty-five years since the land was claimed for the King of France (1682), the French-Latin, and the Spanish-Latin of the Colonial century, followed by the Anglo-American of the post colonial period, have each provided men of heroic mould to shape Louisiana's destinies and lay the foundation for her historic traditions.

It is the Latin cast of her primitive civilization fused ultimately into a three faceted type of population, that has made Louisiana and the Louisianians unique among the states of the American Union.

The history of medicine in Louisiana sharing in the same distinction, is also unique by the fact that from the very beginning of her colonial existence, the early settlers benefited by the presence of a fairly cultured class of medical practitioners, trained and educated in the best French schools of medicine and surgery, who brought with them not only all the resources of the healing art as it was known in those days, but also the European culture and refinement that was denied the great majority of the practitioners who developed empirically in the English speaking colonies of the Atlantic seaboard.

It is also distinctive of the medical history of Louisiana that there is no other state in the American Union and no other city on the Continent that can compare with New Orleans in the close and inseparable relations of its civic problems with the progress of the medical sciences in all their sanitary aspects. Going back to history, it is indeed true that there is no American colony where the first settlers were subjected to greater trials and tribulations by a hostile environment; where the perennial presence of endemic disease (malaria), and the periodic visitation of the most deadly pestilential infections (smallpox, yellow fever, cholera), were added to the insect plagues of the marshes, the fury of hurricanes, the ravages of uncontrollable conflagrations and devastating inundations; indeed, no other colony, where the terrors of the wilderness, climaxed by the war cry of the savage and the armed threat of rival nations—were seemingly more closely allied with the spectre of disease for the extermination of the precursors and pioneers of an unwanted and invading civilization.

And yet, after little over a century of this unequal struggle, the colony survived and emerged triumphant; and when Louisiana, at the beginning of the 19th century (1803) was transferred to the possession of the United States, her metropolis, New Orleans, had become the capital of half a continent and the coveted mistress of the Mississippi Valley. It is indeed regretable that during this century of sanitary distress and calamitous events, when the relations between the medical men and the people were most intimate and mutually interdependent, the medical chronicles of that period should have been so meagre and barren of information regarding the prominent personalities and the medical problems that so deeply concerned the health and prosperity of the people. The usual excuse that the first printing press was not installed in New Orleans until 1764, and the first newspaper, published in Louisiana, (Moniteur de la Louisiane) appeared as late as 1794 and that the hospitals, which contained the most important archives, were destroyed, is of no avail when we consider the wealth of colorful history which the classical historians of Louisiana have amassed on all subjects that interested them in the other professions and in everything except medicine, medical events and personalities, no matter how relevant or important to the public interest these might be.

None the less, convincing evidence, gathered from diverse sources, has accumulated sufficiently to show that the first ship and army surgeons who were detailed for colonial service in Louisiana under Iberville and Bienville and their successors, during the first half of the 18th century, were, for the most part, men of a recognized gentility as well as ability; their medical as well as extra professional accomplishments contributing much to alleviate suffering and strengthen the morale of the sorely tried and struggling community. It was the medical practitioners, recruited from the ranks of the colonial surgeons, as they came from France and the French West Indies, who found their way to the military and trading outposts and plantation settlements in the wilderness and brought to them the gifts of the surgical craft and the medical wisdom which they had been taught in the Mother country, and, later, often displayed with astonishing results in their primitive surroundings.

An interesting and notable feature of medical practice in Louisiana during the colonial period is the apparent absence of the millenial feud and traditional differences and disputes between Physicians and Surgeons, which had furnished so much material for ridicule and amusement to Molière and the satirists of the medical profession in the previous (17th) century. This was no doubt due to the levelling effect of the isolation and struggle for existence in a wild and sparsely settled country where the bulk of the population was concentrated in the plantations and was constituted by the negro slaves whom the doctors treated largely at a salary, by annual contract with the planters. While the laws of the colony, like those of the Mother country, subordinated the surgeon to the physician, they were a dead letter; nor were they even enforced after 1769, when the Spanish Regime was inaugurated by a proclamation of General O'Reilly, which forbade that major operations should be performed without the concurrence and approval of an Academic physician or internist (Medicus purus) who did not operate, but who formulated the diagnosis and dictated the indications of treatment. In fact, from the very beginning of the colony, the naval and army surgeons (Alexandre, du Prat, Jallot, Manadé, de Puyardon, et al) became general practitioners and the physicians who came after them learned to operate, and bled, cupped, leeched and blistered when the barbers were not at hand to help them. Even Montegut, the Surgeon-General of Galvez (1777-1785) in his brilliant campaigns against the British, did a large general practice in time of peace, including obstetrics.

Besides all this, the fundamentals of medical education had become wonderfully equalized between Doctors and Surgeons when Louis XIV, the Grand Monarch, after whom Louisiana was named, out of gratitude to his surgeon, Francois Felix, had completely rehabilitated the Surgeons by the memorable decree of September, 1699, later confirmed by Louis XV (1724) and Louis XVI (1774), and vastly enlarged the Faculty of the Old Surgeons' Hall of St. Côme and granted its graduates all the rights and privileges enjoyed by the haughty doctors of the University who, for centuries, had held tyrannical sway over the barber surgeons of St. Cosmas and St. Damian. But still Medicine and Surgery were taught as separate professions until the Directorate of the French Revolution (1789-1791) found it necessary to restore the universities and institutions of learning, including the Medical Schools, which it had abolished in the first moments of its iconoclastic fury. With rare good sense they recognized that Medicine and Surgery were only branches of the same tree and that it was absurd to treat them as separate professions. This brought into existence the Ecoles de Santé which licensed their graduates to practice Medicine and Surgery under the one title of Officiers de Santé. Thus we see that the practitioners of Louisiana had practically recognized the unity of Medicine and Surgery for nearly a hundred years before the wigged Masters at Paris had come to the same conclusion.

As previously indicated, very little is now known of the Colonial Surgeons or the general practitioners who succeeded them in the French speaking parishes of Southern Louisiana, where the population was reinforced in 1764-65 by the arrival of the exiled Acadians from Nova Scotia. The Spanish speaking population was also increased, but to a much less extent by the Canary Islanders who settled in St. Bernard and Lafourche in 1786-87, through the inducements offered by Governor Miro. By family traditions and scant parish records, we know that these medical men were usually far superior to their clients in their educational attainments, and that they were a hardy, sober and God fearing set of men who often did extraordinary cures and, in their respective and deeply Catholic communities, stood next to the priest in the respect and affection in which they were held by their people. They usually attained a ripe old age and passed away peacefully, surrounded by a numerous progeny and by a large concourse of grateful patients who had benefited by their skill and charity. They delighted to recall their old masters and their joyous student days in Paris, Montpellier, Lyons, Marseilles and Bordeaux, which were the most frequent sources of their medical training. The memory of their good deeds was duly recorded in the hearts of their immediate descendants, but their names soon lapsed to obscurity and later, into complete oblivion. So much so, that now, when we search for the relics of such men, we scarcely find them as they lie hidden under the dust, or fading on the face of a crumbling tombstone, probably in a distant and forsaken cemetery or a plantation grave, where nothing is left to tell of the achievements of the hero of a life-long battle with disease and death, but the legends that sometimes linger at the fireside or that are told in the gossip of some old barber's chair.

Such in general is the shadowy silhouette of the medical practitioner in rural Louisiana during the 18th century and before the Purchase of the Province by the United States (1803) let down the bars that had obstinately kept out the covered wagons of the Anglo-American pioneers who did not tarry long in taking possession of the fertile uplands of North Louisiana which had been scarcely touched by the fringe of a romantic Latin civilization. The Anglo-American doctor brought with him the vigorous, intelligent and dominant spirit of his race which well fitted his newly acquired sovereignty, and compensated with his hard common sense, for his scholastic crudities and professional deficiencies. Yet, half a century had to elapse before a native English speaking school could assert itself in Louisiana with any effect on the inheritance of a refined French system of medical education.

In the drama of Louisiana's colonial century, the scenario is enlivened by a colorful parade in which figure, in heroic proportions, the images of explorers, missionaries, statesmen, soldiers, priests, jurists and patriotic martyrs, even a picturesque buccaneer,—who have made the history of Louisiana's infancy and who have long since found their way to the Pantheon of her great. But the noiseless soldiers of the army of health and healing, whose predecessors shared in the perils and hardships of the conquest of the wilderness, and whose daring courage and devotion in the pursuit of their humanitarian mission has brought pride and renown to the state, fail to see in the inscriptions or citations of her monuments any mark of their presence or of their service.

Prompted by these thoughts and in the hope that this empty niche in Louisiana's history might be well and justly filled, I have thought fit to tell the story of a long forgotten pioneer and neglected hero of our profession, who, in virtue of his unique achievements at the time and place in which he lived, is entitled to a high pedestal in Louisiana's Hall of Fame.

### PREVOST

I will now introduce to you M. Francois Marie Prevost, of Donaldsonville, Ascension Parish, La., the first surgeon repeatedly and successfully to perform the Cesarean operation in Louisiana, and, as far as known, the second to accomplish this feat in the United States.

Let us first acquaint ourselves with what little we know of the man and his antecedents and then consider his claims to the homage of his fellows.

Francois Marie Prevost was born in the South of France at Ponts de Ce, a fertile and picturesque island on the river Loire, which is connected with the mainland by numerous bridges, hence the name. He was the oldest son of Marie Anne Kenotaire and Jean Pierre Prevost, natives of the Eastern Department of Marbelleau, seemingly country gentry in comfortable circumstances, since they were able to give their son, Francois, the advantages of a preliminary education that would fit him for the study of medicine in Paris.

The precise date of Prevost's birth is unknown, but it was in 1771, if we may judge by the registry of his death in the records of the Catholic church of Donaldsonville, which certifies that Francois Marie Prevost died on May 18, 1848, at the age of 77 years.[1]

Prevost was graduated in Paris; the precise date of his graduation is unknown, but, presuming that he was between 21 and 25 years, he would have been in Paris about 1791-1795, in the very vortex of the French Revolution, when the Directorate abolished all the medical faculties which had been founded by Royal prerogative and replaced them with the Ecoles de Santé in which surgery was especially well taught for the benefit of the young surgeons who were needed to serve in the armies of the Republic under Napoleon. They conferred the title of Officiers de Santé, and it was under this title that Prevost was licensed to practice at Port de Paix, Haiti. If he was a medical student in Paris during the period 1788-1794, he must have made the rounds of the hospitals with Desault, Dupuytren, Broussais, Bretonneau, Bichat, Cabanis, Corvisart and other celebrities of that period,—Dupuytren especially, who held clinics at the Hotel Dieu, to which flocked all the aspiring surgeons of the world as the greatest center of instruction in their art. It is more than probable that the inspiration and knowledge given him by the great masters at Paris infused the ability, confidence and self-reliance that Prevost displayed when he performed his Cesarean operations in Donaldsonville.

It is also more than probable that Prevost developed a special interest in the Cesarean operation while a student in Paris, where many circumstances combined, in his day, to direct the attention of a thoughtful student to the subject. About that time (1795-1800) obstetrics, seemingly in harmony with the turbulent atmosphere of the Revolution in Paris, had become the storm center of the disputes and wrangles between the advocates and the detractors of the Cesarean operation. Jean Louis Baudelocque ("the elder") inventor of the pelvimeter and distinguished father of obstetric pelvimetry, had been elected professor and chief surgeon-accoucheur at the Maternité (1794) in succession of Levret, who had attained great fame by his improvements of the obstetric forceps, and by his unrivalled teaching of the principles that govern its application. About the time, when, presumably, Prevost was attending lectures, Baudelocque was engaged in a polemic with LeRoy,—a loud mouthed and envious rival who had sponsored the operation of symphysiotomy as a substitute for the Cesarean section. Though symphysiotomy had been suggested by Severin Pineau, of Angers, as early as 1598, the recent success obtained in 1777 by Jean René Sigault in the famous case of Mme. Souchot, had brought the operation to public notice, with LeRoy as its chief apostle in opposition to the Cesarean section. Baudelocque also had to encounter a far more malignant opponent in J. S. Sacombe, a fiercely prejudiced and virulent writer who not only denounced the Cesarean section as a murderous operation, but went so far as to charge Baudelocque with the murder of a woman who had succumbed after a Cesarean performed by him under extraordinary difficulties. These calumnious assertions soon brought Sacombe to the courts, where Baudelocque was completely vindicated and Sacombe condemned and compelled to leave the country in disgrace.[2] As if to offset these charges, several successful Cesarean deliveries were reported by Tarbes, Handy, Coutouly (1797), and other provincial surgeons, including the celebrated case of Mme. Gobary, who had been delivered successfully by the Cesarean section in two successive pregnancies, by Bacqua, a surgeon at Nantes. These cases attracted considerable attention and were made the subject of a special report by Baudelocque at the Medical Society of Paris in 1797[3] in which he compared the advantages of Cesarean section with symphysiotomy, craniotomy, cephalotripsy, embryotomy and other methods of delivery which were ruthless in their total disregard of the fetus.

Quite apart from the notoriety given to these academic disputes there were other events and circumstances that brought the Cesarean section to the foreground in Paris at the close of the 18th century. Despite the unfavorable conditions that prevailed for the publication of medical books during the "Reign of Terror", a number of special treatises and monographs devoted to the Cesarean section appeared, which gave the operation a greater stability as a classical and highly developed technical procedure. A notable literary event of this period was the appearance, in 1790, of Kurt Sprengel's most erudite history of the Cesarean operation, a work which, even to this day, is an indispensable guide to the ancient lore of this oldest of historical operations.[4] Baudelocque's "Art des Accouchements" (1781), which was almost certainly Prevost's text book, set the Cesarean operation conspicuously in relief as the supreme expression of obstetric surgery. The essays and monographs which had preceded this text book, by Levret, Millot (1778), Deleurye (1779), and those that followed,—Lauverjat (1788), Chotral (1799), Chrestien (1799) and Planchon's complete history of the operation (1801), all contributed valuable suggestions and improvements to the operative technic which steadily strengthened the position of the Cesarean section in obstetric practice.

From the preceding remarks we may well gather that Prevost enjoyed exceptional opportunities for acquainting himself with the obstetric problems of his day, and especially with the controverted phases of the Cesarean operation. Therefore, when he came to his task as a pioneer surgeon in the backwoods and primitive plantation settlements of Ascension and performed the Cesarean section for the first time in Louisiana, he came, not as a raw surgical recruit or an untutored empiric, but as a man of knowledge and surgical culture, who was conscious of his responsibilities and could be bold where others shrank, and successful where others failed.

* * *

After his graduation in Paris, Prevost migrated to San Domingo (Isle et Cote de St. Domingue, practicing as Officier de Sante at Port de Paix, Haiti, W. I.)

Sometime after the slave insurrection of 1791, he fled with other French refugees to Louisiana, establishing himself in Ascension Parish, at Donaldsonville, where, at his death, he had practiced with distinction for nearly half a century.

The precise date of Prevost's appearnce in Donaldsonville is unknown.[5] He married his first wife, Marie Therese Burnuchon, at Port de Paix, San Domingo, on December 13, 1799.[6] If the date of his birth (1771) is correct, he was 28 years old when he married at Port de Paix, while his bride was about 35. How soon after his wedding he fled from San Domingo, is also uncertain. The great insurrection of the negro slaves, which caused the flight of many of the white residents to Louisiana, took place in 1791 and the country was in a chaotic disorder until 1799-1800; but it is evident that, despite the troubled state of the Province, Prevost was still at Port de Paix in December, 1799. It was about that time (1800) that the famous negro leader, Toussaint l'Ouverture, was beginning to restore order in San Domingo, but it is quite probable that Prevost, who had been practicing medicine as an Officier de Santé, decided to take no chances at further white massacres, and sought refuge in Louisiana,[7] presumably with his bride.

Ascension Parish was first settled about 1763 by a colony of exiled Acadians who found a refuge in Louisiana from the persecution of the British in Acadia, now Nova Scotia. This settlement became known as the second Acadian coast. The descendants of these early pioneers are many of the most prominent and influential families of the Parish today.

The "Parish of Ascension" was the name given this ecclesiastical division of the territory of Orleans by the promoters of the Catholic church sent by Charles III of Spain, to Louisiana in 1772. It formed part of the Compté d'Acadie d'Orleans until the division of the territory into parishes, in 1817, after the transfer of the territory to the United States, when it was incorporated as one of the original 19 parishes of the state (Alcée Fortier).[8] The town of Donaldsonville was founded in 1806, and previous to that time had been an Indian trade post for more than 100 years.

Presuming that Prevost came to Ascension Parish after his marriage in 1799 and departure from San Domingo a few years thereafter, let us say within the ten years of the first decade of the century (1800-1810), he must have found the country in a very unsettled and disorganized condition, and his practice scattered among the relatively few white planters and traders who owned plantations, the bulk of the population consisting of slaves and freed negroes, and the fast disappearing Indian tribes that still inhabited the region.* It is more than probable that, in accordance with the custom of the country, he was engaged by contract with the planters to supervise the medical care of the slaves at a regular annual stipend or salary. At any rate the bulk of medical practice in these plantation regions was among the slaves and Prevost, like most of the country practitioners of that period, derived practically all of his experience and practice from them.

It is evident that Donaldsonville made rapid progress in its developement as the chief center of population in the Parish when we consider that for a short time in 1830 Donaldsonville was the capital of Louisiana as the site of the old State House still indicates.

When the capital of the state was transferred from New Orleans to Donaldsonville ("a village far removed from the seat of faction and intrigue") in 1830, the population of Donaldsonville consisted of 492 inhabitants, of whom only 261 were whites. The population of Ascension Parish as a whole numbered 5,426, distributed as follows: whites, 1,725; free colored, 134; and slaves, 3,567.[9] In 1823, there were only from 30 to 40 houses in Donaldsonville, and a population of 150 to 200 inhabitants.[10]

In further proof of the rapid development and growth of Donaldsonville, Dr. Harris (probably quoting information given him by Cottman and Duffel) stated, in 1878, "Donaldsonville appears to have become a centre of French Medicine and Surgery in the days of Prevost; two of his contemporaries, St. Martin and Gourrier, both good surgeons, have followed Napoleon to Moscow; besides, there were Bouszoin, considered as at the head of his profession; Tusson, Daboral, Arboneaux, Preval, Edward Duffel, and Clements."[12]

At the time of Prevost's first appearance in Ascension Parish, in the first decade of the last century, there was no medical organization. The practitioners outside of the metropolis, New Orleans, were scattered in widely separated towns and settlements, where they lived practically isolated from scientific or professional communication with the outside world. There were no medical societies, no medical journals, nothing in fact that would incite the practitioner to professional intercourse or to make record of his experiences. The first medical journal published in Louisiana was the Journal de la Societé Médicale de la Nouvelle Orleans, a French publication which was started in New Orleans in 1830, but practically all the journals and literature came from France. This lack of incentive and the little or no inclination of the average, hard-worked practitioner in the territory, where the distances were great and the means of transportation and communication most rudimentary, all combined to discourage literary activity and prevent the recording of experiences and events which would have been so helpful to future historians. In this way we can account for the fact that Prevost left no record of his activities, and that it was not until 30 years after his death that the medical world outside of Donaldsonvlle and Ascension Parish first learned that such a man as Francois Marie Prevost had existed, much less knew what he had done to immortalize his name in the medical annals of the State.

### ROBERT P. HARRIS, THE HISTORIAN

It was not until 1877, nearly 30 years after Prevost's death, that, thanks to the inquisitive and persistent investigaions of Dr. Robert P. Harris, of Philadelphia (1822-1899), a famous obstetrician and the greatest authority on the history and statistics of the Cesarean operation as it had been performed in America, the merit of Prevost's pioneer achievements was made known to the profession of his own state and to the outside world. It is even more remarkable that, despite the pains taken by Dr. Harris to establish the priority of Prevost's operations in the leading medical journals of the country, and to give credit to Louisiana for the first Cesarean operation successfully performed in the United States, in two papers that appeared in the New Orleans Medical and Surgical Journal, in 1879 and 1880,[12] the name of Prevost scarcely, if ever, appears on the list of distinguished American pioneers in abdominal surgery from Louisiana and of the United States.* It is also curious that, in the transactions of the Louisiana State Medical Society, which began with its organization in 1878, precisely at the time when Dr. Harris published the result of his historical inquiry into the Cesarean section in Louisiana, Prevost's name scarcely, if ever, appears in any of the numerous memorial addresses and orations that have been delivered in the Society during the 57 years of its existence. It is not surprising, therefore, and in view of our own silence and seeming indifference, that Southern medical writers and historians who, up to the present time, often indulge, and justly enough, in glowing panegyrics of the great physicians and surgeons of Louisiana, fail to mention Prevost, of Louisiana, the first and most intrepid of them all.

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*A census of the territory of Orleans taken in 1810, reveals a population of 76,556 in the territory, while Ascension boasts a population of 1,141 whites, 47 free colored, and 1,031 slaves, or a total of 2,219 inhabitants.[11]

### NEWSPAPER CONTROVERSY REGARDING PRIORITY IN LOUISIANA

It is only fair to say that there is evidence that a knowledge of Prevost's operations had spread by rumor outside of Donaldsonville and Ascension Parish as early as 1830. This would appear, from a heated newspaper controversy between the New Orleans Bee, of August 19, 1830, and the Louisiana Courier, August 21, 1830, over a statement in the Mercantile Advocate of August 17, 1830 (also a New Orleans paper), in which the credit for the first Cesarean section in Louisiana, and in the South, was claimed for Dr. Charles A. Luzenberg (1805-1848)* who, assisted by Drs. J. P. Davidson and J. J. Ker, had performed a Cesarean section a few days previously in an unsuccessful attempt to save a slave mother and child. The editors of the Bee, and a writer in the Argus, another paper, (August 20) denied the priority and importance of Luzenberg's operation, and claimed that the operation had been repeatedly and successfully performed by Louisiana surgeons long before the arrival of Luzenberg, among whom Prevost was mentioned as having performed the last two, with the saving of the child in one and of the mother and child in the other. This controversy between the New Orleans Bee and the Courier continued throughout August, causing considerable stir in professional and lay circles and ending with no vindication of the claims of either contestant, except in so far as our present interest in the controversy is especially concerned, that it brought to light the name of Prevost among others as a successful performer of the Cesarean section in Louisiana to public notice for the first time .

When it was claimed in the Advocate and Courier that the Cesarean operation had been but seldom performed in Europe, not more than two or three times in the United States and never in the South "until Dr. Luzenberg's performance," the statement was promptly challenged by the Bee and a correspondent of the Argus (another local paper.) These papers denied that the operation was rare and asserted that it had been performed thousands of times in Europe and many times in New Orleans and Louisiana. In support of this contention, the Bee cited "Dr. Dubreuil of this city, the owner of a mulatress who had undergone the operation ten times successfully but had died in her eleventh delivery presumably by the same method."

"Mr. Lacroix and another physician had performed the Cesarean section three or four times with as much skill as success."

"Mme. Mourous, of Donaldsonville, owned a negress who had been delivered five times by the Cesarean section with the saving of two babies, the last two operations having been performed by Mr. Prevost."

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*We look in vain for the name of Prevost in T. Gaillard Thomas' admirable review of the progress of Obstetrics and Gynecology in a "Century of American Medicine (1776-1876)." Lea, Philadelphia, 1876.

*Arrived in New Orleans in 1829, shortly after his graduation from Jefferson Medical College, Philadelphia, 1828.

The Courier (August 21) replied by quoting authorities (Nicholson's British Encyclopedia) to show the great infrequency and fatality in the operation in Europe—by a blanket denial of the authenticity of the cases quoted, charging the editor of the Bee or his informants with ignorance of the difference between an *embryotomy* and a Cesarean section, and casting ridicule upon the preposterous reference "to the case of Dubreuil, a female who had endured the Cesarean operation ten times and other four times," . . . Furthermore, the writer in the Courier (evidently inspired by Luzenberg) challenged the Bee and the Argus "to make known the details of the procedure adopted in the alleged Cesarean operations herein referred to."

The Courier closed by saying, "As a citizen of Louisiana I should be proud to learn that the stock of surgical knowledge amongst its professors here is greater than the boasted science of European practitioners; and I would with pleasure twine a wreath and assist to crown with the ivy of the learned the distinguished citizen who performed the Cesarean operation ten times with success on the person of the same individual."

What a pity that the editor of the Bee did not accept the challenge and instead only excused himself from further discussion on the ground that the practitioners whom he had cited were creditable witnesses and that their statements were sufficient without further investigation. Had he been more inquisitive and more tenacious in support of his contention it would have sufficed to have questioned Prevost, who was then practicing in Donaldsonville, to have scored at least the essential point in his argument that the Cesarean operation had been successfully performed in Louisiana with the saving of two out of three mothers and three children, nearly a decade before Luzenberg, in 1830, had unsuccessfully perfomed the same operation. It is evident, however, that the Bee's information had been obtained by hearsay and not by an actual scrutiny of the facts; and it is not surprising that the editor (not a medical man) should have been misled, not only by the gross exaggeration of the facts, but by the misrepresentation of the nature of the operations.

The eleven fabulous Cesareans that it was alleged had been performed on Dr. Dubreuil's slave and the three or four operations that are credited to Lacroix and other unnamed practitioners may be well dismissed as apocryphal. Dubreuil and Lacroix were known to have practiced in New Orleans but nowhere, in all the search that we have made, do we find a mention or suggestion of such phenomenal experiences outside of the reference given in the Bee. Nor is it at all likely that such extraordinary cases could have escaped the searching survey of Louisiana instituted by Drs. Harris and Bemiss in 1877. Dr. Harris' description of his experience in scanning the evidence that he had gathered in Louisiana shows how difficult it is to detach the truth from fiction, even when a competent investigator deals directly with some of the pretentious claimants to distinction in this procedure. Even Prevost's fourth case of the woman Bellau, Mme. Mourous' slave, on whom he operated successfully with the saving of mother and child, has been grossly exaggerated by local rumors to six or seven operations on the same woman, instead of two.

The fact that remains clear out of all this discussion is that Prevost's right to priority in the performance of the Cesarean section in Louisiana remains undisputed and undimmed today, despite the *circumfusa* that kept him in obscurity until his achievements were brought to light by a stranger (Harris) more than half a century ago.

It is evident, therefore, that Prevost's local reputation as an extraordinary surgeon had been profoundly impressed, possibly even exaggerated, in the minds of the people of the parish, who, in travelling far away, prided themselves on his achievements. This appears to be confirmed by Dr. J. G. Nancrede, of Philadelphia, in a paragraph of his report on the celebrated case of Mrs. Reybold, upon whom the first two successful Cesarean sections in Philadelphia, had been performed by Prof. Gibson of that city, in 1835. In this paragraph, Dr. Nancrede states that "a friend of great intelligence and respectability in Louisiana, on a visit to Philadelphia, mentions as a fact that the operation (Cesarean) had been repeatedly performed in that country, more especially in the last ten years, several times by Dr. Prevost, of Donaldsonville, La. My informant also states that he was in the home on one occasion while Dr. Prevost was performing the operation on a mulatto woman for the *sixth* or *seventh* time, which, however, terminated fatally, though it had been successful in the same patient several times."[13]

### LOCAL RESEARCH IN ASCENSION PARISH: DRS. DUFFEL AND COTTMAN

Dr. Harris, commenting on this statement, in July, 1878,[12] 43 years after Nancrede's publication, said, "Finding that Dr. Nancrede had never hunted up the record of this very remarkable case and that there was no report of it in the French or American journals of the period, we began to hold the story in very great doubt and determined, if possible, to clear up this mystery, although it may be imagined that the task undertaken was no simple one. It took several years before we could find a physician in Ascension Parish who would act for us in making a local search among the old inhabitants; but at last, in Dr. John E. Duffel, whose grandfather had been a contemporary of Dr. Prevost, was found an active and interested coworker. Through him we were also enabled to find Dr. Thomas Cottman, the successor of Dr. Prevost, then residing in New York (1878) whose information has been of great value."

It was from Dr. Cottman, Prevost's former associate who, in 1877, had retired from practice and was residing in New York, that Dr. Harris obtained the direct and most authentic information regarding Prevost's life and an account of the operations that gave Prevost the priority in the performance of the Cesarean section in Louisiana and, as Harris thought, in the United States. As Cottman's testimony is most important in establishing Prevost's claim in this matter, it is well to note some biographic facts regarding the career of this remarkable man.

Thomas Edmond Hough Cottman was a native of Somerset County, Maryland, born in 1808. He received his early education in Washington College, and in 1830 was graduated M. D. from the University of Maryland. After his graduation, he removed to New Orleans, in 1831, and, after spending the winter in this city, he settled in Donaldsonville, where he remained until after the close of the Civil War, 1867, when he moved with his family to New York. Cottman not only became closely associated with Prevost, but learned from him the history of his Cesarean operations and his method of performing them. He also inherited Prevost's books and instruments after his death. Following Prevost's example, he performed the Cesarean section in 1832, saving the mother; he again operated in 1849, saving the mother, the child dying in both instances.

In 1836, Dr. Cottman married Miss Marie Louise Tournilion, the only daughter of St. Julien de Tournilion, a wealthy planter of Assumption Parish. Cottman soon accumulated a considerable fortune; he gave up the practice of medicine in the early fifties* and turned his attention to State and National politics, in which he attained great prominence.

In 1853, he visited Paris, where he became very much interested in Russian affairs. The Czar attached him to the surgical staff of the army under Grand Duke Nicholas, and he served with him in the Crimea. After the death of the Czar, he returned to his home in Donaldsonville, which was burned by the Federalists under Admiral Farragut. He then moved with his family to New York.

In 1867, he again visited Russia and took part in a scientific expedition to Samarkand and Bokhara. On his return to New York, he was made chief of the Bureau of Streets, which office he retained until 1871, when failing eyesight compelled his retirement. It was during this period that Dr. Harris consulted him in New York and obtained all the information regarding his relations with Dr. Prevost that we have referred to. Dr. Cottman died in New York in December, 1892, at the age of 84.**

Dr. John E. Duffel, of Donaldsonville, whose father was a contemporary of Prevost and knew him well, furnished most valuable local evidence in regard to Prevost's operations, which fully corroborated Dr. Cottman's testimony. The name of Duffel has been long and honorably associated with the medical history of Donaldsonville and Ascension Parish. One of his ancestors, Dr. Edward Duffel, was granted a license to practice by the Examining Board in New Orleans as far back as January 10, 1817.[14]

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*"Dr. Cottman was associated with Drs. Lefevre, Joseph Cottman, and Dr. Baldwin in practice in Ascension and St. James as late as 1850."

**See "The Distinguished Dead", probably New Orleans Times-Democrat, sometime in December, 1892. Clipping found in a scrapbook in the possession of Mr. D. Dubois, of Donaldsonville, and referred by him to Dr. Matas through Dr. I. Lemann.

Dr. John E. Duffel, previously referred to as collaborating with Dr. Harris in obtaining data regarding Prevost, became the first president of the first Parish Medical Society which was organized in 1879. He died in Donaldsonville, January 18, 1884.

### DRS. HARRIS AND BEMISS: SURVEY OF THE STATE

In further illustration of Dr. Harris' tenacity of purpose and indefatigable industry in the pursuit of information regarding the Cesarean operation, which was his dominant interest, we should state that in addition to the information gathered from Drs. Cottman and Duffel, he canvassed Louisiana in quest for more unreported Cesarean operations, and, with the able assistance of Professor Samuel M. Bemiss (1821-1884)* circularized the profession, and, as a result, was able to assemble a total of 19 cases, including Prevost's four and Cottman's two operations previously mentioned. These cases were all tabulated and published in the New Orleans Medical and Surgical Journal for June, 1878, and April, 1880. A copy of this table is appended to this paper; it covers all well authenticated Cesarean operations performed in Louisiana until 1880.[15]

### DR. HARRIS TABULATES LOUISIANA CESAREANS UP TO 1880

In April, 1880, half a century ago, Dr. Robert P. Harris wrote as follows in the New Orleans Medical and Surgical Journal of that date: "In no state of the Union has the operation of gastro-hysterotomy (Cesarean section) been so often performed and with such good proportionate results as in Louisiana." To confirm this statement, he tabulated a list of 19 well authenticated cases which he had been able to collect after a laborious search of over ten years. He summarized the nineteen cases as follows:

Operations, 19; recoveries 14; died, five. Children alive at delivery, nine; dead 10; soon died, one. Women operated upon twice, two—all four children alive; one died in a few minutes. Parishes of Ascension and St. James, seven operations; New Orleans and vicinity, five. Unpublished cases with-held, respectively 53, 48, 46, 21 years.

### RICHMOND OF OHIO AND BENNETT OF VIRGINIA

Until 1879, when Dr. Harris first brought to light the merit of Prevost's operations, Dr. John L. Richmond (1785-1855), of Newton, Ohio, was credited with the first performance of this operation in the United States, on April 22, 1827; but, after the publication of Dr. Harris' researches in 1879, the credit of the first operation in the United States was transferred to Prevost.[16] Prevost retained this claim to priority until 1891, when Dr. A. L. Knight, of Virginia, in his history of the great Kanawha Valley of Virginia, brought to light another hitherto unknown claimant to this honor, in the person of Dr. Jessee Bennett, of Rockingham County, Virginia, (also of Norman French extraction) who performed the Cesarean section on his own wife, saving both mother and child, on the 14 of January, 1794.[17] The story of this remarkable achievement has been interestingly told by Dr. Joseph Lyon Miller, of Thomas, West Virginia,[18] and has been more recently revived by Dr. Louis Frank, of Louisville, Kentucky, in an address entitled "Lest We Forget."[19]

This operator, like Dr. Prevost, had never recorded his operation in any publication, and it was only through the inquisitive investigations of Dr. Knight, of Virginia, that this remarkable achievement became known.[20] Prevost undoubtedly operated on his own initiative, with no knowledge of any American precedents to inspire him.* Bennett in West Virginia never recorded his operation, the first published mention of its performance appearing as late as 1891. Richmond, who operated in Ohio, April 22, 1827, (saving the mother) reported his case in 1830,[21] long after Prevost had performed his first two operations. Apart from his initiative, Prevost has the added merit of performing the Cesarean section, not once, but four times, saving the mother and child in three instances and the child in one.

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*Professor of Principles and Practice of Medicine, Medical Dept., University of Louisiana (now Tulane), 1866-1884.

*Ephraim McDowell, (1771-1830) the father of ovariotomy, did his first ovariotomy in 1809, but it was not until October 1816, that his first cases, three in number, were published in the Eclectic Repository and Analytical Review of Philadelphia, the only medical journal then in existence in the United States. He operated in all eight cases with one death, four white and four negroes.

In considering the merit of Dr. Prevost's performance, it is well to remember, as I have previously stated, that Ascension Parish was first settled in 1763 and that, when Prevost appeared in Donaldsonville, it was a mere settlement or government post surrounded by plantations owned by a few white planters who controlled a large population of negro slaves.

As Harris states, Louisiana had a "much larger proportion of Cesarean sections than any other part of the Union" in the early nineteenth century, a statement true also for Southern blacks in relation to whites of the entire country. Early Cesarean operations among the cotton and sugar producing states were performed almost entirely upon negresses.

### PREVOST'S PATIENTS AND INDICATIONS FOR OPERATION

In Dr. Prevost's case, the most common cause of dystocia apparently was rickets, with resulting pelvic deformity. The region around Donaldsonville, according to Dr. Harris, appears to have been one of the contemporary centers in which the prevalence of rickets was most marked. His first two operations upon the same woman, a slave, in two successive pregnancies, complicated by rachitic pelvic deformity, resulted in recovery for both mother and child, and was performed before 1825, probably between 1822-1825. Dr. Prevost made his third Cesarean section about 1825 on a slave woman, the property of a German blacksmith, Krolin, the child alone surviving. Dr. Prevost pointed out the boy, then six or seven years old, to Dr. Cottman, in 1832.* The fourth operation was performed in 1831 on a 28 year old negress, Caroline Bellau, or Bellak, the property of Madame Cadet Mourous. A laparotomy by left lateral incision saved both mother and child. Dr. Prevost named the girl, a mulattress, Cesarine, and stipulated with Mme. Mourous that, if she lived, she should have her freedom, which was acceded to and subsequently given. Caroline made a good recovery, as the operation was elective and performed in good season, and she lived until Cesarine was nearly grown up. Dr. Cottman first saw them both in 1832, and examined the cicatrix of the former. This was the woman referred to by Dr. Nancrede, of Philadelphia, who was reputed to have had six or seven similar operations. Dr. Harris' conclusions, after special search by Drs. Duffel and Cottman, revealed the rumor to be fictitious, both as to the number of operations and as to the death of the patient.

It is very regrettable that the precise dates of the first and second operation on the same woman, with safety to herself and children, are not known. They were certainly performed before 1825, when the third operation was performed, probably between 1822 and 1825. But Dr. Cottman, who communicated these facts to Dr. Harris 53 years or more after their occurrence, had not kept a record of the exact dates. Dr. Prevost was already an old man when Cottman first met him, and of a peculiarly reticent nature, which accounts for much loss of detail in the report of his cases, though, as Cottman's and Duffel's evidence proves, there can be no question that the first two operations were performed before 1825.

### TECHNIC: THE UTERINE SUTURE

Full details of Prevost's technic are also lacking, especially in regard to the treatment of the uterine wound, but it is evident that neither Prevost nor Cottman, who followed him, practised uterine suture* especially as Harris,[23] who particularly studied this feature of the operation, in reporting the eighteenth Cesarean operation in Louisiana, on December 21, 1867, by Drs. H. C. d'Aquin and Warren Brickell, with recovery of the mother, states; "that this was the third case on record in American experience in which sutures had been used and the first in the United States in which the uterus had been closed with silver wire."

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*The boy was then living with a woman who kept a shop in Donaldsonville. He was still living in Washington, D. C. in 1888.

*Cottman, in describing his second Cesarean section[22] which he performed on a negress in July, 1849, refers only to the sutures of the abdominal wall. In this case, the child had been dead 24 hours. Dystocia caused by sacral exostosis and enormous size of the head. Craniotomy was tried and part of the skull extracted to no avail and the Cesarean section was resorted to. The child weighed 12 pounds. The mother was up and about in three weeks.

Incidentally and apropos of technic, it is noteworthy that the first application of the suture to the uterine wound is mentioned in 1788 in Lauverjat's essay previously referred to in connection with Prevost's student career in Paris. This procedure, which has been erroneously attributed to Lauverjat, is credited by him to Lebas, of Monsilleron, France, who resorted to it in a successful Cesarean in 1769.[24] Hull (London, 1799) in his "Defense of the Cesarean Section" also refers to Lebas, and, in approving his suggestion, advises a "Glover's suture with the upper end left out of the abdominal wound for its ultimate removal by traction." Wiesel, of Hulsenbusch, Germany, is also known to have sutured the uterine wound about the same time, and, like Lebas, scored a success by this method to the credit of the operation (Stolz)[25].

It is remarkable that, despite the obvious advantages and relative simplicity of the uterine suture, the theoretical fear of peritonitis induced by suppurating stitches, should have outweighed the positive dangers of the unstitched wound, *for over five centuries!* Despite the repeated demonstration of the innocuousness of the uterine suture, the view prevailed in surgery that all sutures and ligatures were foreign bodies which always tended to suppuration, requiring that some provision be made for their removal after they had served their purpose. As this was not easily accomplished after the abdomen was closed, the suture of the uterine incision was never practised until the beginning of the 19th century, when it was optional or restricted to special indications ( gaping and bleeding wound in a relaxed uterus.)

The isolated experiences of Lebas, Wiesel and others had long been forgotten when the suture of the uterine wound was revived and came into general use after the success of Dr. Godfroy, of Mayence, who, on May 27, 1840, sewed up the uterus of a woman who had been two days in labor, by means of common needles and double waxed thread. For this act he was much condemned by his contemporaries; but the recovery of the woman recommended the innovation and influenced others to imitate him.[26]

It is evident that Prevost, and all the Cesarean operators who followed him in Louisiana remained faithful, until 1867, to the old traditional practice which trusted the healing of the uterine incision to the unaided and usually quite successful efforts of Nature, and it was not until the Listerian doctrine and the aseptic technic had become established in the 9th decade of the last century that with a clearer appreciation of the septic perils of the uterine wound, the technic of the uterine suture was revived and made one of the most vital and obligate features of the operation which, since 1882, has become classical under the name of the Saenger Conservative Cesarean Section.

Despite the very imperfect and incomplete description of Prevost's operative technic, as given by Cottman to Dr. Harris, it would seem that Prevost was largely guided in his practice by the teachings of his Parisian masters. Following the advice of Levret, strongly emphasized by Baudelocque[29] it would seem that he operated whenever possible before the membranes ruptured and the uterus was still tense with the amniotic fluid. Levret advised this for technical reasons (smaller incisions, less bleeding and greater ease in delivering the fetus out of a fluid bed, than out of the grip of a contracting spastic uterus); but, far more important than all the technical reasons, was the advantage of operating before the patient was exhausted and collapsed by prolonged and fruitless efforts at delivery. This was probably the secret and greatest factor in Prevost's success.

### THE ABDOMINAL INCISION

The choice of abdominal incision for Cesarean section seemed to pre-occupy the European surgeons of Prevost's day to an extraordinary extent. Baudelocque devoted fourteen pages to this subject in order to arrive at the final conclusion that the linea alba is the line of election, a conclusion that was soon after universally adopted. According to Cottman, Prevost made his incision in either side of the midline, along the outer edge of the rectus, as originally practised by Levret. The chief consideration was that the abdominal incision should expose the uterus to the best advantage and in line with the uterine cut, so that if the lochia drained out of the uterine wound, the discharge would find an easy escape through the abdominal incision, which was kept open at the lower end with a tape drain in anticipation of this event. The textbooks of that period figure no less than 12 incisions known by the names of as many operators who, before 1825, had plotted the abdomen in this way, including the incisions devised by Jörg (1806), Ritgen (1820), Physick (1822) and particularly Chas. A. Baudelocque (1823)[28] (actually carried out by Ritgen and Baudelocque) for an extraperitoneal approach to the lower uterine segment and vagina which would permit the extraction of the fetus above the pelvic brim, leaving the uterine wound in the lower segment of the uterus to drain into the vagina, or if it leaked at all, the discharge would occur in a space excluded from the general peritoneal cavity.

* * *

The advent of the Saenger Cesarean, in 1882, marked not only a new era in the history of the operation, but it revolutionized the obstetric field itself in principle and practice, in a remarkably far reaching, sociologic way. As it is not within the scope of this article to discuss the present status of the Cesarean section, except in so far as it relates to Francois Prevost and his time, we may go back to the beginning of the 19th century when he was most active in practice at Donaldsonville. Then a Cesarean section was quite an unique affair, an adventure which bordered on the heroic in view of its great rarity, great fatality and the great burden of responsibility that its performance entailed, especially when there was no anesthetic to soothe the patient and calm the scene. If Prevost were to awaken after the 87 years slumber, since he closed his eyes in 1848, perhaps the first observation that would strike his attention in looking over his heaped up journals and texts would be the extraordinary frequency and commonplace character of the operation which had given him so much concern and caused so many sleepless nights in his earlier years. It seemed as if every doctor was doing it. It was being performed, in his own Louisiana, on every 5 or 6 women in confinement with a death rate of over one and a half per cent! This alone was puzzling, but still more unaccountable was a statement he read in a recent journal, that in a series of statistical reports which covered "the obstetric experience of the last two decades in the leading Maternities of this country and abroad, 1,843,356 deliveries had been recorded. Of this number, 19,450 (1.5 per cent) had been delivered by the abdominal (Cesarean) route and 1,269 (5.6 per cent) had died." (P. B. Bland, 1936). These figures were alone staggering; he could not conceive that such a fabulous number of Cesarean babies could have been born since Creation.

To his greater surprise, he read the reports of one clinic controlled by one surgeon where 500 low Cesarean section had been performed with 1 per cent uncorrected surgical mortality (Adair, University of Chicago, quoted by Lynch, S. G. O., Feb. 15, 1937). He also came across a paragraph in a British text book which reminded him of some remarks that he had caught from his old teacher, Baudelocque: "The maternal mortality is 9.4 per cent when the Cesarean is performed late in labor; 14 per cent when it is preceded by an indication of labor and 26.5 per cent when it follows attempts at delivery by forceps or craniotomy" (Holland, Manual of Midwifery, 1931).

Again, to his still greater surprise, he found that aside from the indication of contracted pelvis, with which he was familiar and others that he could understand were compelling, there was "an ever growing list of Cesarean sections performed for no obstetrical indication." Thus he found reported cases operated "on demand of the patient," "wish of the family doctor," "economic," "to preserve a normal pelvic outlet," "a recent vaginal repair," "repeated attacks of false labor," "fetal distress," "premature rupture of the membranes without labor pains, (although the pelvis is not contracted or abnormal), "no indication," "many in whom desire for sterilization entered frequently in the indications;" and in another paragraph the information that 0.76 per cent of all women delivered in the United States in 1934, were by Cesarean section, as were 2.8 per cent of all hospital births. (F. W. Lynch; S. G. O., 338, Feb. 15, 1937)

"The rate of incidence is rising 3.26 per cent." Chief cause of increase: (1) Cesarean taking place of high forceps; version and extraction; (2) sterilization as presumptive indication in cardiac, renal and pulmonary cases. (Arnott; West. J. of Surg., Feb. 1936).

"In the United States deaths following Cesarean section constitute approximately one-fourth of the maternal deaths from all causes after the seventh month of pregnancy." (Lynch, F. W.: *Surg. Gyn. Obst.*, 64:338, 1937.

The only remark on reading these reports that Prevost would make, was: "Voila la Chirurgie qui fait concurrence au bon Dieu, je n'y crois pas, voila!" There is Surgery in actual competition with God. I don't believe it, voila!

### THE MORTALITY OF THE CESAREAN SECTION IN THE DAYS OF PREVOST

The disputes that were going on between the opponents and advocates of the Cesarean section at the time when Prevost was a student in Paris will suffice to show that the status of the Cesarean section as a legitimate and standardized surgical procedure was still in question at the close of the 18th century. The mortality that attended it was fearful and this was enough to deter even the boldest surgeons from performing it. Yet it was not so much the operation, but the desperate state of the patients and the conditions under which it was performed, that invested the Cesarean section with its lugubrious attributes. Always appealed to as a last, forlorn hope, when all else had failed, and death seemed inevitable, it is no wonder that it was very rarely performed, and that when the mothers and children were saved, it was like a miracle and a resurrection.

Until the close of the 18th century, there were no statistics of the operation worthy of the name; only records or compilations of operations culled from the general literature which were unreliable for statistical purposes. The first fifteen successful Cesareans which François Rousset and Bauhin compiled in 1580, chiefly from the medieval literature, are generally accepted, (despite the manifestly fabulous and apocryphal character of many of them) as marking the transition from the postmortem Cesareans, performed solely in the hope of saving the unborn child, and the antemortem Cesareans which aimed at the saving of both mother and child. The postmortem operation goes back to the remotest Greco-Roman, Jewish, Persian, Hindu and Egyptian antiquity[29]. Here and there, isolated instances of antemortem operations can be traced as far as the 13th, 14th, and 15th centuries, but these are very rare and so tinctured with exaggeration, and have such little historical backing, that their authenticity has been justly questioned.

It has been estimated that toward the close of the 18th century (1795-1800) 150 Cesarean sections had been recorded in the literature since Rousset and Bauhin had compiled the first fifteen successful Cesareans in 1580-1. How thoroughly unreliable this material was for statistical purposes is shown by the way it served the purpose of the extreme fatalists and opponents of the operation on the one hand, like Sacombe, LeRoy, Richter and the British obstetricians*, who only saw death in the operation and who would forbid it altogether; and, on the other hand, how it pleased such optimists and superficial investigators as Klein, who, in 1800, claimed, after a general survey of the literature, he had found that in 116 recorded Cesarean sections, no less than 77 per cent of the mothers had been saved. The incongruity of the statistical results led Kurt Sprengel[30] (Halle, 1790) to review the literature, taking only well authenticated cases into account. His inquiry resulted in seventy-eight genuine cases with 50 per cent maternal mortality. Michaelis, of Kiel, a well known authority on the subject, collected 130 perfectly authenticated Cesarean sections recorded in the European literature from 1801-30, with the result that 54 of the mothers recovered (61.5 per cent) and 76 died (58.5 per cent. Kayser, of Copenhagen (1844) added 80 more operations recorded between 1830-1840, with a mortality of 62 per cent. From 1840 to 1860, 160 more cases were reported which, altogether, at the close of 1860, summed up a total of 370 genuine Cesarean operations, resulting in the saving of approximately one-third of the mothers (33 1-2 per cent), and no less than two-thrids (66. 2-3 per cent) of the children[31].

While these figures probably represent a much lower mortality than actually prevailed in Europe during the period that Prevost was operating in Donaldsonville it is also true that the mortality rates varied greatly according to the countries, the localities (immediate environment), the operators, and especially the physical condition of the patient at the time of the operation. It might be said in general terms that the mortality was greatest where the opposition to the operation was greatest as this always meant a delay in its performance to the last moment when all else had failed. Thus, in Great Britain, Radford's statistics of the first hundred Cesarean sections in the British Isles, beginning in 1739, (with the first Cesarean operation successfully performed by May Donnelly, an Irish midwife) shows that only sixteen of the mothers recovered and 57 of the children survived.

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*Up to 1866, 89 per cent of the British Cesarean operations had proved fatal (Harris).

West, in 1851[32] stated that only one woman in seven survived the operation. It is not surprising, therefore, that the British surgeons, with a mortality of 85-95 per cent, should have balked at the operation and regarded its performance as prohibitive, despite the strong pleas that Hull (1781), Wood, Thompson and others made for it in England, before the close of the 18th century.

On the continent, in Germany, the great August Gottlieb Richter (1777) regarded the operation as almost invariably fatal. Papers on the "Lethality" of the Cesarean operation and other such ominous titles were not infrequent in the literature (Tillman, 1833). Thornwalt (1846) reported the experience of the surgical clinic at Nassau and Wiesbaden, with 42 operations performed between 1821-1842, resulting in twelve women saved and thirty dead, or a mortality of 71.5 per cent. Apparently, patients operated in the country districts had better chances for recovery than those operated in the maternities of the great cities. The chances of peritonitis and puerperal infection were always greater in the crowded hospital wards. It was known in Paris, that, up to the close of the 18th century, 50 to 60 Cesarean sections had been performed in as many years, without a single maternal recovery. Tarnier (1828-1867) is reported as having said that, up to his time, there had not been a successful case in Paris during the 19th century, and Spaeth (1823-1896) said the same thing of Vienna in 1877. This accounts in part for the great rarity of the operation in the great obstetric centers of Paris, Vienna, Berlin, London, where the annual delivery of 5-10,000 women surely provided abundant indications for its performance.

In comparison, six cases operated in the Department of la Creuse, in France, in the period 1843-1852 all ended in happy recoveries for mother and child. Some operators appeared to have been more fortunate than others in their results, some succeeding in every case; others in two out of three; four out of six; four out of seven operations. (Stoltz)[33]

The statistics of the 79 operations performed in the United States compiled by Robert Harris for the period of 1822-1877[34] show, as a whole, results superior to those obtained in Europe, with 48 per cent of the mothers and 47 per cent of the children saved.

Again, Harris wrote[35]: "I believe it fair to estimate the general results of the American cases as having saved 50 per cent of the women, and of the *timely* operations (within the first 24 hours and before exhaustion) the results would be increased to 70-75 per cent of both women and children saved."

When Prevost came to Ascension in the beginning of the last century, the history of the Cesarean operation in the United States was still in embryo. Its future historian, Harris, was born in 1822, just about the time when Prevost was performing his first Cesarean at Donaldsonville. It took half a century, until 1871, before Harris could collect a total of 59 Cesarean operations in the United States, just a little more than one case per annum during that period. In 1878, the list of recorded cases increased to 71, with 52.2 per cent maternal mortality and 47.8 per cent recoveries, or, on an average of 1.22 operations per annum in a population of over 45 millions! The great rarity of the operations was not due to the rarity of its indications, but to the gravity of its delayed performance in the desperate conditions in which it was resorted to.

## CONCLUSIONS: PREVOST AND THE MERIT OF HIS WORK

Prevost, at the beginning of the century, could not foresee the future of the Cesarean operation, or gather inspiration from the marvellous advances in abdominal surgery that followed in the new century of American experience which he unknowingly but virtually inaugurated. When brought face to face with the operation in Donaldsonville, he had no American precedents to guide him and only the example of his old teachers, and Baudelocque in particular, none too cheerful in encouraging him to the performance of a duty which, beginning as an adventure, generally ended in a tragedy; but, when coming from the parturient woman as a signal of distress—an S. O. S.—the obstetrician must heed, regardless of adversity.

During the half century that Prevost's long standing right to priority was overlooked in the American chronology of the Cesarean operation, several postulants appeared for the honor of the first performance in the United States. For many years Professor Gibson, of Philadelphia, was credited with the first Cesarean in the United States, which he performed on the distinguished Mrs. Reybold of that city in 1835, and a second time in 1837, twelve years after Prevost had twice saved the life of a colored slave and child by the same operation in two successive pregnancies. In both instances, Mrs. Reybold's and the negro slave woman, the dystocia had been caused by rachitic pelvic deformity. The case of Mrs. Reybold attracted much attention because the most famous American surgeons and obstetricians of that time saw her in consultation. They were Wm. Gibson, Joseph Nancrede and P. S. Physick, the foremost surgeons; Thomas C. James, the celebrated accoucheur of the University or Pennsylvania; C. D. Meigs, his famous pupil, and Wm. E. Horner, the world renowned anatomist. This patient, in all statistical tables, is referred to as Gibson's case. She was indeed a woman of extraordinary courage and fortitude: "She passed through an embryotomy in 1831, a second embryotomy in 1833, a Cesarean section in 1835, and a second Cesarean section in 1837." At the time of Prof. Gibson's first operation in 1835, there was very little known of the prospective results of the Cesarean section. The experience of European, and especially the British surgeons, as previously shown, was anything but encouraging. As Harris puts it. "It required a considerable boldness in an operator to undertake such a case, especially as it was known that the great Dr. Physick was unwilling to risk his reputation upon it. The triumph and credit were therefore all the more merited by Dr. Gibson." Mrs. Reybold lived to old age and for some years her two Cesarean children were presented annually by Prof. Hodge to his classes at the University of Pennsylvania, as merited triumphs of the Cesarean operation.

Compare the professional environment of this patient with that of the poor negro slaves operated upon by our Dr. Prevost—"a poor salaried plantation doctor who had nothing to depend upon except his knowledge, his conscience and his God!"

We can well picture Prevost's operating as heroic work in the primitive conditions of the places and of the patients upon whom he operated.

Alone, in a negro cabin, dimly lit by candles or an oil lamp, assisted only by a negro mammy or other slave women, without anesthesia, without asepsis, probably without even common cleanliness, and without modern instruments to control hemorrhage, he saved seven out of eight lives, including three mothers and four children, by an operation which had been virtually condemned in the greatest hospitals of the world, including London, Paris, Vienna, because it had proved almost invariably fatal in the hands of the greatest masters. And what is most interesting is that Prevost did not wait until the patient was utterly exhausted or in extremis but showed his good judgment by operating when the patients were still strong and before their vitality had ebbed out. It was largely to this forethought that his success was due; but it took great courage and strong convictions on the part of the surgeon to undertake an operation at this stage and equal courage and faith on the part of the patient to consent to such a procedure before the failure of nature's efforts at normal delivery became apparent.

Nor was he prompted in his daring by any craving for fame or glory, by a desire for publicity in the press, nor by the stimulus of an audience gathered in a great surgical amphitheatre to applaud the performance of a great Master; nor was he stirred by that intense emotional impulse which prompts a man to do heroic deeds when the object of his love or solicitude is in danger, as in the case of Dr. Jessee Bennett, of Virginia, who operated on his own wife when other more experienced colleagues dared not do it; or when the patient involved was an appealing woman of his own race, as in Richmond's case; nor because he expected some material reward from the wealth and social prestige of his patient; no, none of these considerations influenced his actions, for Prevost's only condition was that the patient and her child should be freed from slavery if they survived the operation.

Prevost, the humble village doctor, came up to the full measure of a great surgeon who has been well defined as "a man whose intellectual resources are independent of any technical equipment or rules of convention or tradition, a man who conquers perplexing and unclassified contingencies with an ever-victorious readiness that knows no rule o'thumb, but does the correct thing instinctively before the mind has hardly had a chance to analyze. He (Prevost) had the heroism of a pioneer and the courage that is born of absolute self-dependence[36]."

* * *

Dr. Cottman described Prevost as a very reserved man, shunning publicity, who never published a line that would record or proclaim his achievements. And nearly half a century had to elapse before his own fellow citizens and his professional brethren were made aware of his greatness by the admiration that his deeds evoked in strangers remote from his own town and state.

Apart from the facts above stated, we know little or nothing of his private life and personal characteristics. No portrait or image remains to reveal his features, no sign to indicate where he lived during the nearly half century that he faithfully served his community.

We know that he was twice married. His first wife was Marie Therese Burnuchon, the eldest daughter of Marie Therese Giroud and Joseph Burnuchon. They were married at Port de Paix, San Domingo, on December 13, 1799. She was a widow, childless, 35, and he, about 28 years old. She died in Donaldsonville on February 9, 1835, aged about 71 years[37]. If she died when 71 years of age, she was born in 1764 and therefore Dr. Prevost's senior by seven years, and was 35 years old when she married Dr. Prevost in 1799. He died in 1848, therefore survived her 13 years.

He married Victorie (or Victoire) Castellain, of Donaldsonville, in 1838, three years after the death of his first wife, when he was 67 years old. She survived him five years, dying in 1853, at 60 years. She was born in 1793, was 45 years of age when she married Prevost, and 22 years his junior. No children came out of this union; Dr. Prevost had an adopted son, John Roberson, who died in 1850.

Prevost had retired from practice sometime in 1836, and, according to some reports, was partially paralyzed at the time of his death, which occurred at his plantation near Donaldsonville, on May 18, 1848, at the mature age of 77 years.

It is only a few months ago that, with the help of interested and diligent friends, his burial place was finally discovered in the cemetery at Donaldsonville, where he is interred with the remains of his second wife and a number of the relatives of their adopted son, John Roberson[38].

* * *

Costly monuments have been erected to the memory of Richmond, who performed the first Cesarean operation in Ohio, still more costly shafts and parks named after McDowell, who performed the first ovariotomy in Kentucky, and still other memorials are distributed over the land (Crawford Long, Georgia; Marion Sims, Alabama) to mark the resting places of the medical and surgical pioneers of nearly every state in the South, but thus far there is no memorial tablet or distinctive sign in the cemetery of Donaldsonville to indicate the resting place of her most distinguished citizen and Louisiana's greatest pioneer surgeon.[39]

We are happy that, despite the dust that for over half a century has clouded the memory of Dr. Prevost's great deeds, we have been able to resurrect in an old newspaper[40] a parting tribute to his worth which is still warm with the gratitude of the people he loved most and who knew him best.

### A LA MEMOIRE DU DOCTEUR FRANCOIS MARIE PREVOST

Mort le 18 du courant, sur son habitation, paroisse Ascension, a l'age de 77 ans.

La Providence a prolonge ses jours
Pour en marquer le laborieux cours,
Par des actes de Charité sans nombre
Que son bon coeur souvent laissait dans l'ombre.

Epoux tendre, maitre juste et clement,
Il est mort calme et de son lot content.
Puisse son ame, en quittant ce bas monde,
Voler au ciel ou le bonheur abonde;
Et la, libre des liens d'un frele corps,
S'unir a Dieu par d'eternels accords!

Following is a liberal translation:

"Such countless deeds of goodness marked his way,
All unrecorded by his gentle heart,
That Providence itself held Time at bay
That he might unmolested play his part.

Tender he was to the wife at his side,
To those who called him Master—clement, just,
Content with his lot, in peace he died,
With no remorse to stir his sleeping dust.

His soul in winged victory fled the shell
That held it long in bondage to an earthly place,
Now freed from care, unmolested may he dwell,
His goodness blessed by God's Eternal Grace.

### SUPPLEMENTARY NOTES AND BIBLIOGRAPHY

1. Through the efforts of Rev. Vernon P. Aleman, record of the burial of Dr. Prevost was located in the register of the Church of Ascension, Donaldsonville, La. The following certificate is stamped as a true copy by the rector, Father C. M. Chambon, December 31, 1934: "Livre des enterrements des blancs pour la Paroisse Ascension depuis 1841 jusqu'a 1866 (page 72, year 1848): L'an mil huit cent quarante huit et le dix neuf mai, je soussigne Curé de l'Ascension, ai donne la sepulture ecclesiastique au corps de Francois Marie Prevost, decede hier, age de soixante et dix sept ans. J. Boullier, Curé."

2. The story of Sacombe's antagonism and bitter fight against the Cesarean section would alone furnish material for an interesting volume. He not only denied the authenticity of the first fifeeen successful Cesarean sections which Rousset and Bauhin had compiled in 1581 in advocacy of the Cesarean section on the living (which up to that time had been practised almost exclusively as a postmortem procedure) but regarded all the testimony that had been adduced in favor of the operation as unfounded and apocryphal. With him there was no salvation in the Cesarean section and to emphasize its fatality he asserted that Catherine de Medici had suggested, on the eve of St. Bartholomew's massacre, that the Huguenot women who might be pregnant should be delivered by the Ceseraan operation as a sure way to extirpate "the breed." Sacombe also approved the story which originated with Marchant (1548), (another critic of the Cesarean operation), that Henry VIII, of England, had ordered that his third wife, Jane Seymour, should be delivered in the Cesarean fashion. She died (1537), and it was alleged that the future King Edward VI. had been extracted in this way. This story has never been confirmed and Denman and other English writers regard it as a pure fabrication. See Sprengel's History of Medicine, Jourdan's Translation, vol. vii., p. 296, 1808.

3. Baudelocque (aine) Recueil Period., Soc. de Med. de Par., 1799, v-3-89.

4. Sprengel, Kurt: History of Medicine, Journdan's Translation, Paris. 1809.

5. Extensive research has failed to bring to light any record which would establish, even approximately, the date of Prevost's arrival in Louisiana. It is quite possible that he obtained a physician's license, although the law requiring it was not strictly enforced, and that a record of his license may be found among documents now being indexed (1937) under the auspices of the United States government (as yet unavailing for research).

6. Through the kindness of Dr. I. I. Lemann and his brother, Mr. Walter Lemann, resident of Donaldsonville, I have obtained a copy of Dr. Prevost's marriage contract with his first wife, Marie Therese Burnuchon (or Burnichon), eldest daughter of Marie Therese Giroud and Joseph Burnuchon, the childless widow of Jacques Benoist Pouillaiton, all of Port de Paix, San Domingo. The marriage contract was drawn up at Port de Paix, on December 13, 1799, and duly recorded at the request of Dr. Prevost by Ed. Duffel, judge and notary public, at Donaldsonville, Ascension Parish, April 4, 1835, C. O. B., "R", p. 132) that is, 36 years after the original contract had been executed in Port de Paix by the notary Bressat. The precise reason why this was registered in Donaldsonville is not specified, but it was evidently connected with the settlement of the community estate after the death of Mme. Prevost, at Donaldsonville, on February 9, 1935. Dr. H. A. Folse, Mayor of Donaldsonville, secured from the pastor, Rev. C. M. Chambon, a copy of the record of her burial in Donaldsonville as follows: "Burials Register, page 267: L'an mil huit cent trente cinq, le dix fevrier, je, soussigne ai donne le sepulture ecclesiastique au corps de Marie Therese Burnichon decedee (femme Prevost) la veille, agee d'environ soixante et onze ans. H. Brassac, Cure."

7. Dr. H. A. Folse, of Donaldsonville, has searched diligently all available sources in an effort to secure biographical data concerning Dr. Prevost, and has contributed a large share of the facts we have been able to assemble. The following is an extract of a letter from Dr. Folse, written June 1, 1934: "Some of our oldest residents who recall Dr. Cottman, say he lived in Darrow, as did Dr. Prevost. This is very likely true as we have found record of the sale of Dr. Prevost's plantation . . . (See Note No. 38.) The land described is situated one mile below Darrow, on the East bank of the Mississippi. As no old residence or buildings now exist on this land, and as it is on a caving bank of the River, the levee having been moved back a number of times, it is assumed that his residence was near the River in what is now a part of its bed."

8. Fortier, Alcee: Louisiana, vol. i., Century Historical Association, 1914. Ascension Parish, pp. 44-46.

9. Marchand, Sidney A.: The Flight of a Century, Ascension Parish (1800-1900), Donaldsonville, La., p. 28.

10. Marchand, Sidney, A., loc. cit.

11. Marchand, Sidney A.: Brooks Gazetteer, p. 57.

12. Am. J. Med. Sci., n. s., vol. 76, 1878, pp. 69-70. For evidence of Harris' relations with Duffel, Cottman, Bemiss and others from whom he obtained data that established Prevost's priority in the performance of the Cesarean section in Louisiana, see:

Harris, Robt. P. The Cesarean operation in the United States. Am. J. Obst., 4:409, 1871-2, p. 622; with special reference to Prevost, pp. 435-437.

The operation of gastro-hysterotomy (true Cesarean section) viewed in the light of American experience and success, with a record of cases largely obtained by correspondence, Am. J. Med. Sci., 76:68, 1878.

A record of the Cesarean operations that have been performed in the State of Louisiana during the present century, N. O. Med. & Surg. J., 6:923, 1878; 7:938, 1879.

The Cesarean record of Louisiana—A correction, N. O. Med. & Surg. J., 7:938, 1880.

Also of particular interest by Harris are: Personal Reminiscences of Statistical Research. Phila. Med. Times, 1872, III. 166.

Operation for gastro-hysterotomy viewed in the light of American experience and success; with the history and results of sewing up the uterine wound and a full tabular record of the Cesarean operations performed in the United States, Am. J. Med. Sci., 75:313, 1878.

A study and analysis of 100 Cesarean operations performed in the United States during the present century and prior to the year 1878, Ibid., 77:43, 1879.

Twenty Cesarean operations with 15 women saved in Louisiana, N. O. Med. & Surg. J., 7:456, 1879-80.

Remarks on the Cesarean operation, Am. J. Obst., 11:620, 1878. Also Tr. Obst. Soc. Phila., 6:20, 1879.

13. Nancrede, Joseph G.: Am. J. Med. Sci., 16:347, 1835.

14. Through the kindness of Mr. Edw. D. Seghers, and also from an article in the New Orleans Times-Picayune of March 10, 1935, by Meigs Frost, we are able to make the following summary regarding the Duffel family:

Edw. Duffel, M. D., Born in Philadelphia, July 31, 1786—Died in Ascension Parish, May 6, 1859. Graduated from University of Pennsylvania, 1806; physician, surgeon, lawyer, parish judge, planter at Woodstock Plantation near Donaldsonville. His son:

Dr. Edw. Duffel II., born on Woodstock Plantation, December 11, 1811; member of the Louisiana Legislature, signer of Secession Convention of 1861; died January 18, 1884.

Dr. John Edw. Duffel III., son of Dr. Edw. Duffel II., known as Dr. John Duffel was born in 1838, graduated from the University of Louisiana in 1861. Practised medicine prominently in Donaldsonville.

Dr. Louis Edward Duffel, also son of Dr. Edw. Duffel II. (1848-1935), like his brother, graduated in medicine from the University of Louisiana and practised medicine in Donaldsonville. He was known as Dr. Edward Duffel. He died June 4, 1935 in Donaldsonville. (Times-Picayune June 5, 1935, death notice).

15. THE CESAREAN RECORD OF LOUISIANA

| No. | Date | Operator | Locality | Result to Woman | Result to Child | Reference or Authority |
|---|---|---|---|---|---|---|
| 1. | *Not known definitely (1822?) | Francois Prevost | Donaldsonville | Recov'd. | Saved | Dr. Thos. Cottman, N. Y. |
| 2. | Not known definitely (1824?) | Francois Prevost | Donaldsonville | Recov'd. | Saved | Dr. Thos. Cottman, N. Y. |
| 3. | About 1825 | Francois Prevost | Donaldsonville | Died | Saved | Dr. Thos. Cottman, N. Y. |
| 4. | In 1831 | Francois Prevost | Donaldsonville | Recov'd. | Saved | Dr. Thos. Cottman, N. Y. |
| 5. | In 1831** | Chas. A. Luzenberg | New Orleans | Died | Dead | Drs. J. P. Davidson and Ernest S. Lewis, 1870 |
| 6. | In 1832 | Thomas Cottman | Ascension Parish | Recov'd. | Dead | The Operator in 1878 |
| 7. | In 1838*** | A Drunken Midwife | North of New Orleans | Recov'd. | Saved | N. O. Med. & Surg. J., 11:13. |
| 8. | In 1846 | J. A. Scudday | Thibodeaux Parish | Recov'd. | Alive | N. O. Med. & Surg. J., 6:355, 1850-51. |
| 9. | May 17, 1849 | J. A. Scudday | Thibodeaux Parish | Recov'd. | Saved | N. O. Med. & Surg. J., 6:355, 1850-51. |
| 10. | July, 1849 | Thomas Cottman | St. James Parish | Recov'd. | Dead | N. O. Med. & Surg. J., 7:337, 1851. |
| 11. | Jan. 30, 1850 | Vincent Boaqui | Near Opelousas | Recov'd. | Dead | The Operator, Apr. 15, 1871 |
| 12. | May 10, 1851 | Daniel B. Gorham | Bayou Sara | Recov'd. | Saved | N. O. Med. & Surg. J., 7:194. |
| 13. | In 1857 | A. T. C. Langenbecker | New Orleans | Died | Saved | N. O. Med. News & Hosp. Gaz., 1857, p. 555 |
| 14. | Aug. 25, 1860 | J. C. Egan | Bienville Parish | Recov'd. | Dead | N. O. Med. & Surg. J., July, 1877, p. 35. |
| 15. | Jan., 1860 | Beauville Claverie | Donaldsonville | Died | Dead | Dr. John E. Duffel, Donaldsonville |
| 16. | July, 1866 | Moody | Athens, Claiborne Parish | Recov'd. | Dead | N. O. Med. & Surg. J., July, 1877. |
| 17. | Dec. 21, 1867 | H. C. D'Aquin & D. Warren Brickell | New Orleans | Recov'd. | Dead | N. O. Med. & Surg. J., 21:454, 1868 |
| 18. | In 1873 | Trudeau and Felix Formento | New Orleans | Died | Dead | Dr. Ernest S. Lewis, March 5, 1879. |
| 19. | Aug., 1873 | Chas. and Gaston Bordis | Near Napoleonville, Assumption Parish | Recov'd. | Dead | Dr. Thos. B. Pugh, Bertie, La., Aug. 21, 1879. |

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*Not later than 1822.

**According to controversial letters which appeared in the Bee, of New Orleans, 1830, this case was performed in August, 1830, and was the fifth operation up to 1831; Thomas Cottman, of Donaldsonville (Prevost's associate) did the sixth operation in 1832.

***The seventh case was operated in 1838 by an old drunken widwife; the patient, a negro woman, in New Orleans; both mother and child survived. It was reported by Bennett Dowler in the N. O. Med. & Surg. J., 11:13, 1854, as follows:

(The Cesarean Record of Louisiana—A Correction, by Robert P. Harris, N .O. Med. & Surg. Jnl., 1879-80, vol. vii., n. s., p. 939).

Of the 19 cases, nine had deformed pelves and four pelvic exostoses.

On the whole, the operation saved 73.13 per cent of the women, and 42.2 per cent of the children. In three instances the same woman was operated twice and all recovered; five of the children were extracted alive and three survived.

In no other section of the United States have late operations met with anything like this degree of success, which exceeds that of the 26 early operations in the United States, except in the saving of children.

"The late eminent Judge Waggaman, many years ago a member of the Senate of the United States, informed me that an old drunken negress, who acted as midwife on his plantation, above New Orleans, on being called to a black girl during her first labor, which was natural, took a sharp case-knife and without any reason to justify her conduct, laid open the abdomen and womb, and took therefrom a living child. The girl speedily recovered, with no other inconvenience except a slight incontinence of urine. The judge vouched for the accuracy of these facts, and pressed me to visit with him at his plantation, that I might examine the girl, which, however, I had not then an opportunity of doing. He fell in a duel soon after."

16. N. O. Med. & Surg. J., 6:935, 1879.

17. The history of the operation for extra-uterine pregnancy is often confused with that of the Cesarean section, which aims at the extraction of a living fetus from the womb of a living mother. Before the modern era, the operations for extra-uterine pregnancies were, as a rule, mere oncotomies or incisions through the abdominal wall to enlarge fistulous tracts or open abscesses that led to encysted intraperitoneal collections which contained the dead fetus at variable age, and in various stages of degeneration or decomposition. The old world literature of obstetrics is a veritable museum of curiosities in this respect which exhibits retentions of dead,—decomposing, mummified, petrified (lithopedions) or waxy (adipoceres) fetuses that had remained as symptomless tumors for months, years, and even a life time before their true origin was recognized. In America, the history of the operations for extra-uterine fetations is older than that of the Cesarean section. In 1759, Dr. Bard, of New York, operated upon a Mrs. Stagg about two months after the delivery of a living child, and recovered an extra-uterine fetus which had been dead about two years. McKnight, of N. Y., performed the same operation about 1792 on a woman in good health at the time, and recovered a fetus which she had carried 22 months. Wm. Boynham, of Virginia, operated on a planter's wife in 1791 and again on a slave woman in 1799, recovering from the abdominal cavity fetuses that were long dead. Whereas, the first recorded Cesarean section in the United States before Prevost is that which Jessee Bennett, of Virginia, performed on his wife, in 1794.

18. West Va. Med. Monthly, vol. 25, July, 1929.

19. Frank, Louis: Lest we forget. Trans. Sou. Surg. Assn., 45:580, 1932.

20. Knight, A. L.: Virginia. History of the Great Kanawha Valley of Virginia, 1891.

21. Richmond, John L.: History of a successful case of Cesarean operation. Western J. Med. & Phys. Sc., 3:345, 1830. For a full account of Richmond's life and achievements see Otto Juettner, M. D., Lancet-Clinic 107:93, 1912.

22. Cottman: N. O. Med. & Surg. J., 7:337, 1850-51.

23. Harris: Am. J. Med. Sci., 76:326, 1878.

"The question of the safety of such sutures was fully discussed in a paper by Dr. Chas. F. Rodenstein, of Westchester Co., N. Y., in Am. J. Obst. April, 1871, p. 577, in which he advocated their use as a preventive of secondary gaping of the uterine wound and the escape of the discharges into periftoneal cavity, as well as for the arrest of primary hemorrhage."

24. Lebas: J. de Med. et de Chirurg. T. 34. Suppl. 1770.

25. J. A. Stolz, Strassburg: Dict. de Med. et de Chirurgie Pratiques (Jaccoud) in 30 vols.; vol. 6, p. 689, 1867. Bailliere, Paris.

26. Harris: Am. J. Med. Sci., 76:75, 1878.

27. Baudelocque: Art des Accouchements, T II., 1st. ed., 1781, pp. 287-88.

28. Stolz, loc. cit.

29. Dr. S. Choppin, of New Orleans, performed the first recorded postmortem Cesarean section in Louisiana: "Dr. Choppin, of N. O., in 1855, attended a woman in the Charity Hospital at that City, admitted in articulo mortis with yellow fever, and finding her far advanced in pregnancy, examined her by auscultation and palpation and discovered that the child was living. He performed a postmortem gastro-hysterotomy, and delivered a living child, which appears to have reached maturity." Letter from Prof. D. Warren Brickell, of New Orleans, to Dr. Robt. P. Harris. See Harris: Am. J. Obs., 4:640, 1871-2.

30. Sprengel, Kurt: loc. cit.

31. Stolz: loc. cit.

32. West, C.: Med. Chirurg. Transact. Lond., 34:61, 1851; Edinburgh Med. & Surg. J., 78:385, 1852.

33. Stolz: loc. cit.

34. Harris: Am. J. Med. Sci., 75:335, 1878.

35. Harris: loc. cit. (34).

36. This, which was said of John L. Richmond of Ohio, applies no less fittingly and deservedly to Prevost. See Otto Juettner, "Daniel Drake and his Followers" Cincinnati, p. 174. (1909).

37. Through the kindness of Dr. H. A. Folse, mayor of Donaldsonville, the following certificate was obtained from Reverend C. M. Chambon, who has certified the following translation as a true copy: "Burials register Church of Ascension, p. 267. In the year one thousand eight hundred and thirty-five, the tenth day of February, I, undersigned, buried the remains of Marie Therese Burnichon (wife of Prevost) who died on the eve of this day, aged of about seventy-one years. H. Brassac, Pastor."

38. Dr. Prevost had no children by either marriage (Decision of U. S. Supreme Court January 13, 1857, reported in 19 Howard, p. 572, Dr. Prevost "died in 1848 intestate and without issue.") Nothing is known of any relatives of his first wife, Marie Therese Burnuchon, who died February 9, 1835, and it is presumed that she alone came with him to Louisiana from San Domingo. On May 29, 1838, he married Anne Victoire Castelain at the St. Louis Cathedral, New Orleans (See 7e Register of marriages of white persons of the St. Louis Cathedral). She survived Dr. Prevost five years, dying in New Orleans on March 3, 1853, and was buried in Donaldsonville, March 5, 1853, as shown by the certificate of the pastor, Rev. C. M. Chambon: "Livre des enterrements des blancs pour la Paroisse Ascension depuis 1841 jusqu'a 1866, page 146. L'an mil huit cent cinquante trois, le cinq mars, je soussigne ai donne la sepulture ecclesiastique au corps de Mme. Veuve Prevost, decedee le trois de ce mois a l'age de soixante ans. A. Verrina, pretre C. M."

Dr. Prevost's succession was opened in Ascension Parish in 1850, and, according to an inventory taken by Henry L. Duffel, notary public, March 24, 1850, the community property was appraised at $39,238.50, consisting of two plantations on the left bank of the Mississippi, on which were a dwelling house, brick sugar house, negro cabins, outhouses and 44 slaves including ten small children. Eight of the slaves were to be emancipated to carry out a request of Dr. Prevost.

Dr. Prevost and his second wife adopted John Roberson, who died in 1850, at the age of 29 years, three years before Mrs. Prevost. Mrs. Prevost, at her death in 1853, left estate to the two daughers of John Roberson, Alice (Mrs. Coquille, who died about 1926) and Victoire (Mrs. C. Gaudet, living in New Orleans in 1937 at the age of 91 years.) (Mrs. Roberson, nee Amelie Landry, died in 1856.) The will, however, was contested by Mr. Rougeau, a constable in Donaldsonville, who communicated with Jean Louis Prevost of France, brother of Dr. Prevost. Jean Louis sent Ernest Armand Louis Prevost, with power of attorney, to America to claim the estate. The Supreme Court of the United States decided in his favor. (See Succession of Dr. Francois M. Prevost, U. S. Circuit Court, 5th Circuit, Eastern District, April 6, 1854; 12 La. Ann. 577 (1857).

### BURIAL PLACE

39. Dr. F. M. Prevost, his second wife, Mr. and Mrs. John Roberson, Mr. and Mrs. Coquille and children (quadruplets and others) were buried in the Coquille-Prevost tomb in Donaldsonville, La. (It is not known whether or not the first Mrs. Prevost was buried in this tomb.) The tomb is situated in the main alley of the cemetery. It is enclosed by an iron fence and is the second tomb after the large Bringier tomb near the main entrance to the cemetery, right side. The tomb has two inscriptions, namely, Coquille and Prevost. Dates and initials are lacking. The tomb, at one time in bad condition, was repaired by the Coquille family. (The above information was obtained by Rev. Vernon P. Aleman from Mrs. Chas. Gaudet and Miss Inez Coquille of New Orleans, Mr. Sidney A. Marchand, Donaldsonville, Mr. Dufour Bayle, New Orleans, Mr. Ernest J. Robin, New Orleans, Rev. C. M. Chambon, Donaldsonville.)

In addition to the references to Harris' writings, the following may be consulted:

Prevost, Francois Marie, Article in Dictionary of American Biography, signed R. Matas and V. Gray. Scribner, vol. 15, pp. 209-210, 1935. I am glad to avail myself of this opportunity to make corrections of serious errors published unavoidably in this article. (1) Dates of birth and death: b. 1771, d. May 18, 1848. (See Supplementary note No. 1). (2) Due to a clerical error in the act of sale of land and slaves left by Dr. Prevost, recorded in the Courthouse at Donaldsonville, La., (fol. 24, p. 163) it was thought that Dr. Prevost had a son: "sieur Jean Louis Prevost domicilie a Remeval, Finistierre, France, lequel fut aussi reconnu, par le suidit jugement, comme seul et unique heretier de feu Francois Marie Prevost son pere, decedé en la Paroisse Ascension, ou il residerait." (Notice other errors as well as "pere" for "frere"). In a letter to Rev. V. Aleman, (after publication of the above), Mr. Sidney A. Marchand states, "I am sure than Jean Louis was a brother and not a son of Dr. Prevost. In Conveyance Book No. 24, folios 138, 140, 141, 143, 145 and 147, Jean Louis Prevost is referred to as "son frere". Therefore, I am sure that the word "pere" is an error though it is copied as "pere" on the records here at the book and page which you mention in your letter." R. M.

Prevost, F. M.: Dictionary Am. Med. Biog., Kelly and Burrage, p. 992.

Original Contributions of America to Medical Science, Edmond Souchon. Trans. Am. Surg. Ass'n., vol. 35, 1917.

The influence of the last 100 years of medical education on the culture, growth and prosperity of New Orleans, N. O. Med. & Surg. J., 87:514, 1935. R. Matas. Also, translation of Dr. Matas' article with remarks, Presse Medicale, Apr. 22, 1935, pp. 693-94, by M. J. Coelho.

Address delivered at the Armistice Day banquet of French veterans of New Orleans, on the occasion of receiving the Cross of the Legion of Honor. R. Matas, Nov. 10, 1932. (French).

Francois Marie Prevost. Fourteen distinguished physicians and surgeons (Brief sketches of eminent men for whom Duke Hospital wards are named). Dedication of the Duke University of Medicine and the Duke Hospital, Mon. Apr. 20, 1931. Durham, N. C. p. 14.

**Note:** Not to be confused with Dr. Francois Marie Prevost, of Ascension Parish, is the following: In 1825, a French surgeon named Prevost, educated in France, came to Natchitoches at the age of 36, was treated with unwarranted indignity through prejudice and bigotry. He was unfairly arrested, released on writ of habeas corpus, was insulted by a District Attorney named Mills, whom Prevost challenged to a duel. When Mills refused to fight Prevost plunged a dagger into his heart. Prevost gave himself up, was convicted on trial and hanged after months in prison. (History of Natchitoches, by Dr. Milton Dunn. La. Hist. Quart., Jan., 1920, p. 45.)

40. (Published in Le Vigilant, Donaldsonville semi-weekly newspaper, Saturday, May 20, 1848, vol 5, No. 53).

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# A STUDY OF ABDOMINAL CESAREAN SECTION AT CHARITY HOSPITAL 1927-1935*

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and

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Periodic inventories in any business are considered advisable, so it is in medicine. An occasional review of our work gives us a more definite insight into what results are being obtained, and tells one wherein errors are made, enabling improvement where it is necessary. In 1922 Dr. King[1] published the results from abdominal cesarean section at the New Orleans Charity Hospital from 1909 through 1921. In this first report the maternal mortality was high, partly due to the choice of cases and partly due to the type of operation. The results from 1922 through 1926 were very little different. The advent of the low type of section has saved lives, and a more frequent use of the Porro operation has helped in reducing the mortality rate.

This paper deals with a review of sections (abdominal) at Charity Hospital for a period of nine years from 1927 through 1935, and the various tables show the results obtained for these years. There were 32 charts that were unstudied, and except for the mortality rate they have been left out of the discussion.

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

†From the Department of Obstetrics, Tulane University and Charity Hospital.

Table I gives the number of sections for each year with the recoveries and deaths. It is rather striking that the mortality rate should have fallen from 35 per cent (1909-21) and 30.1 per cent (1922-1926) to 8.04 per cent for this nine year period. This lowered maternal mortality is probably due to several factors: (1) that we have ceased to section eclamptics, unless there is an associated contracted pelvis, and (2) to the fact that we, as general practitioners, have learned to recognize contracted pelves before the patients go into labor and have sent them for hospitalization before infection occurred, (3) possibly the more general use of the low section has aided in the questionably infected cases. In the early makings of this report we had thought that sections had increased in frequency, and that this increase accounted for the lowered maternal mortality rate, but as is shown in Table II, the incidence of cesarean section has varied very little from year to year, and remains practically unchanged from that of 1922-26, which was 1.2 per cent.

TABLE I

RESULTS OF CESAREAN SECTION: MATERNAL

| Year | Total | Recov. | Died Operative | | Died Disease | |
|---|---|---|---|---|---|---|
| 1927 | 19 | 18 | 0 | | 1 | (Heart) |
| 1928 | 19 | 18 | 1 | (Peritonitis) | 0 | |
| 1929 | 15 | 14 | 1 | (Peritonitis) | 0 | |
| 1930 | 37 | 32 | 3 | (2 Sepsis<br>1 Spinal) | 2 | (Heart)<br>(Antimony) |
| 1931 | 42 | 39 | 2 | (1Peritonitis<br>1 Hemorrhage) | 1 | (Typhoid) |
| 1932 | 40 | 38 | 1 | (P. O. renal suppression) | 1 | (Toxic—Hemiplegia) |
| 1933 | 45 | 42 | 2 | ( Peritonitis<br>1 Pneumonia) | 1 | (Pyeloneph. 6 mos.) |
| 1934 | 58 | 55 | 1 | (Peritonitis—suddenly on table) | 2 | (Heart—suddenly on table) |
| 1935 | 54 | 51 | 1 | (Infection) | 2 | (Toxemia—abrup. plac.) |
| Total | 329 | 307 | 12 | | 10 | |

| | | | |
|---|---|---|---|
| Total cases studied | 329 | Total deaths studied | 22 |
| Unstudied cases | 32 | Unstudied deaths | 7 |
| | 361 | | 29 |

Mortality 1927-35 ........ 8.04 per cent
Mortality 1909-21 ........ 35 per cent
Mortality 1922-26 ........ 30.1 per cent

TABLE II

INCIDENCE CESAREAN SECTION 1927-1935

| Year | Total Del. | Cesareans | Rate Per Cent |
|---|---|---|---|
| 1927 | 1,506 | 19 | 1.26 |
| 1928 | 1,703 | 19 | 1.11 |
| 1929 | 1,779 | 15 | .95 |
| 1930 | 2,072 | 37 | 1.3 |
| 1931 | 2,528 | 42 | 1.66 |
| 1932 | 3,266 | 40 | 1.22 |
| 1933 | 3,153 | 45 | 1.3 |
| 1934 | 3,695 | 58 | 1.55 |
| 1935 | 3,851 | 54 | 1.4 |
| 1922-26 | 7,117 | 87 | 1.2 |

The indications have been many. Contracted pelvis was the chief reason that the operations were done, there being 161 cases for this condition, with the remainder divided among placenta previa, disproportion, and abruptio placenta, toxemia (without convulsions) and many others in the order named. This is shown in Table III.

It is interesting to note that there were 50 cases of contracted pelvis where more than one operation had been done, and that 33 multiparae had had babies with some degree of ease or difficulty before the first section was performed. Practically all of the cases of contracted pelvis had a test of labor excepting those with known disproportion. Heart disease occurred twelve times in the total cases as an indication. Most of these women were sterilized by some suitable method, at the time of operation. The one case of peri-urethral abscess was in a multipara and the abscess was of such proportions that a section was considered the only method for successfully terminating the pregnancy. Previous cesarean section as the sole indication occurred 13 times; these cases were women in whom sections had been done earlier for some other condition, such as placenta previa, abruptio placenta, or toxemia, and it was feared that the scar might rupture if they were allowed to continue in or to go into labor. The pyelonephritis case was in extremis, only six months pregnant, and it was considered imperative to empty the uterus immediately by the least shocking means, so classical section was done.

Table IV shows the type of section for each year. It is rather interesting that 1930 was the

TABLE III
RESULTS OF CESAREAN SECTIONS: INDICATIONS

| | 1927 | | 1928 | | 1929 | | 1930 | | 1931 | | 1932 | | 1933 | | 1934 | | 1935 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P. | M. | P. | M. | P. | M. | P. | M. | P. | M | P. | M. | P. | M. | P. | M. | P. | M. | P. | M. |
| Placenta previa | 2 | 2 | 2 | 6 | 1 | 5 | 2 | 9 | 1 | 5 | 2 | 5 | 1 | 2 | 1 | 1 | 0 | 10 | 12 | 45 |
| Abruptio placenta | | | | 1 | | | | 1 | | 1 | | 4 | | | 3 | | | 3 | 3 | 10 |
| Eclampsia | | | | | | | 1 | | | | | | | | | | | | 1 | |
| Toxemia | | | | | | | | 2 | | | | 1 | | 1 | 2 | | 1 | 3 | 3 | 7 |
| Contr. pelvis | 4 | 2 | 5 | 4 | 2 | 5 | 8 | 7 | 16 | 5 | 9 | 12 | 12 | 20 | 13 | 16 | 9 | 12 | 78 | 83 |
| Dispro. l. fetus | 1 | 1 | | | | | | 1 | 2 | | 1 | 2 | 1 | 3 | 3 | 3 | 4 | 4 | 11 | 14 |
| Trans. pres. | | 1 | | | | | | | | | | | | | | 2 | 1 | | 1 | 3 |
| Ht. dis. | | 2 | | | | | | 1 | | 2 | | 1 | | 1 | | 4 | | | | 11 |
| Vulval lesions | | | | | | | 1 | | | | | | | | 1 | 1 | | 1 | 2 | 2 |
| Prev. C. S. | | | | | | | | 2 | | 3 | | 2 | | 3 | | 2 | | 1 | | 13 |
| Ovarian cysts | | 1 | | | | | | | | | | | | | | | | | | 1 |
| Ankylosed hip | 1 | | | | | | | | 2 | | | | | | | | | | 3 | |
| Old frac. pelvis | 1 | | | | | | | | | | | | | | | | | | 1 | |
| Ca. cervic | | | | 1 | | | | 1 | | | | | | | | | | | | 2 |
| Hydronephrosis | | | | | | 1 | | | | | | | | | | | | | | 1 |
| Pul. T. B. | | | | | | 1 | | | | | | | | | | | | | | 1 |
| Stenosed cervix | | | | | | | | | | 1 | 1 | | | | 1 | 3 | | 1 | 2 | 5 |
| Uterine fibroids | | | | | | | | | | 2 | | | | | 1 | | | 1 | 1 | 3 |
| Vaginal cicatrices | | | | | | | | | | 1 | | | | | | | | 1 | | 2 |
| Double uterus | | | | | | | | | 1 | | | | | | | | | | 1 | |
| Peri-ureth. absc. large | | | | | | | | | | | | | | | | 1 | | | | 1 |
| Intes. obs. from uter. | | | | | | | | | | | | | | | | 1 | | | | 1 |
| Error diag. | | | | | | | | | | | | | | | | | | 1 | | 1 |
| Not stated | | 1 | | | | | 1 | | | | | | | | | | | | 1 | 1 |
| Pyelonephritis | | | | | | | | | | | | | | | | | | | 1 | |
| Total | 19 | | | | | | | | | | | | | | | | | | | |

TABLE IV

TYPE OF SECTION

| | Classical | Low | Porro |
|---|---|---|---|
| 1927 | 11 | 7 | 1 |
| 1928 | 13 | 5 | 1 |
| 1929 | 8 | 7 | |
| 1930 | 12 | 25 | |
| 1931 | 21 | 16 | 5 |
| 1932 | 15 | 21 | 4 |
| 1933 | 18 | 26 | 1 |
| 1934 | 22 | 29 | 7 |
| 1935 | 20 | 28 | 5 |
| | | (1 Latzko) | |

transition period from the prevalence of the classical to the low type of operation. The classical section was done more often for placenta previa, heart and kidney conditions where sterilization was also done, and in cases that were not considered infected. It will be noted that the Porro operation became more frequent after 1931. Table V shows the maternal mortality obtained from the various technics. There were at least four low sections during 1928-30 on which a Porro should have been performed. The infections in the remaining low section cases that died were probably unavoidable. The mortality rate for all the operative procedures is surprisingly low, and it is apparent that without the low or Porro technic it would have been much higher.

### MATERNAL MORBIDITY

Table VI lists those patients with postoperative fever above 100.4° for any period. Some of the cases were not infected or septic. However, as would be expected the incidence of febrile cases is higher in the low section group, because the majority of these had been in labor, and had several vaginal or rectal examinations, besides a small proportion had this operation because of potential infection. The complication column includes conditions developing during the postoperative period or pres-

TABLE V

MATERNAL MORTALITY—TYPE OF SECTION

| Year | Classical | | | Low | | | Porro | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | Died | | Total | Died | | Total | Died | |
| 1927 | 11 | 1 | (Heart) | 7 | 0 | | 1 | 0 | |
| 1928 | 13 | 0 | | 5 | 1 | (3 days in labor-peritonitis) | 1 | 0 | |
| 1929 | 8 | 0 | | 7 | 1 | (3 days in labor peritonitis) | 0 | 0 | |
| 1930 | 12 | 3 | (1 spinal<br>P. S. Plac.<br>1 Heart<br>1 Antimony poisoning) | 25 | 2 | (Both sepsis, infected before oper.) | 0 | 0 | |
| 1931 | 21 | 2 | (1 Hem. abd.<br>1 unexplained) | 16 | 0 | | 5 | 1 | (Peritonitis and embolism) |
| 1932 | 15 | 2 | (1 Moribund Hemiplegia<br>1 Renal Sup.) | 21 | 0 | | 4 | 0 | |
| 1933 | 18 | 1 | (6 mos. Pyleoneph) | 21 | 1 | (Bronchopneumonia | 1 | 1 | (Peritonitis) |
| 1934 | 20 | 2 | (1 Heart<br>1 Suddenly on table) | 29 | 1 | (Peritonitis) | 7 | 0 | |
| 1935 | 20 | 1 | (Infection P. S. Plac.) | 28 | 2 | (Severe toxemia<br>1 Myocardial failure<br>1 Latzko peritonitis) | 6 | 0 | |
| Total | 138 | 12 | | 159 | 8 | | 25 | 2 | |

Classical 6 from operation — 6 from operation (Low) Porro—2 operations

Gross 8.5% Gross Low Mat. 5% — Gross 8%

Corrected 4.3% Low Maternal 3.1% — Corrected 8%

ent at the time of operation that were not due to the operative procedure, such as pyelitis, parotitis, breast conditions, or influenza.

This gives an uncorrected morbidity rate of 81.7 per cent (low), 70 per cent (classical) and 72 per cent (Porro), or for the series as a whole of 75.2 per cent. This compares with 77.6 per cent for the patients in the 1909-21 series.

TABLE VI

MATERNAL MORBIDITY—BY YEARS

| Year | Low | | Classical | | Porro | | |
|---|---|---|---|---|---|---|---|
| | Total | Febrile | Total | Febrile | Total | Febrile | Com |
| 1927 | 7 | 5 | 11 | 7 | 1 | 0 | 1 |
| 1928 | 5 | 4 | 13 | 7 | 1 | 1 | 2 |
| 1929 | 7 | 6 | 8 | 5 | 0 | 0 | 2 |
| 1930 | 25 | 17 | 12 | 6 | 0 | 0 | 4 |
| 1931 | 16 | 15 | 21 | 15 | 5 | 3 | 4 |
| 1932 | 21 | 17 | 15 | 10 | 4 | 3 | 0 |
| 1933 | 26 | 24 | 18 | 15 | 1 | 0 | 3 |
| 1934 | 29 | 25 | 21 | 18 | 7 | 6 | -- |
| 1935 | 28 | 21 | 21 | 21 | 6 | 5 | 2 |

CONDITION OF THE INFANTS

In the 329 sections studied there were 273 babies (see Table VII) discharged from the hospital living and apparently in good condition; eight the condition of which was not stated on the chart; 28 that were stillborn; 14 premature infants that lived one hour or more after delivery and eight full term babies that died soon after delivery. This gives a percentage of 83 per cent living babies as compared with 77 per cent for the 1909-21 group. Some of the stillborn babies were known dead before operation. The section was done because of inability to deliver the child below, on account of tumors, distorted pelves and other conditions.

TABLE VII

CONDITION OF INFANTS

| Year | Living | Stillborn | Died Premature | Died Full Term |
|---|---|---|---|---|
| 1927 | 14 | 3 | 1 | 1 |
| 1928 | 16 | 2 | -- | 1 |
| 1929 | 12 | -- | 2 | 1 |
| 1930 | 35 | 2 | -- | -- |
| 1931 | 30 | 5 | 2 | -- |
| 1932 | 32 | 7 | 1 | -- |
| 1933 | 39 | 1 | -- | 1 |
| 1934 | 50 | -- | 4 | 3 |
| 1935 | 45 | 8 | 1 | 1 |
| Total | 273 | 28 | 14 | 8 |

CONCLUSIONS

1. The mortality from cesarean section at the New Orleans Charity Hospital has fallen during the past nine years, due chiefly to improved judgment in selecting cases, and improvement in operative technic; those frankly infected having a Porro, while the low section was done wherever possible, reserving the high operation for clean cases; also to fewer cases entering the wards already infected after a long trial of labor, and to the discontinuance of sections for eclamptics.

2. Indications for sections are many, however the largest group is made of contracted pelvis. Repeat sections for this condition is not infrequent.

3. The low type of section is advisable for all cases that have been in labor, and those in which the lower uterine segment is partially formed. The high is probably best in placenta previa, and cases where sterilization is to be done. The Porro operation would probably have saved several lives where the low operation was done, and should be used in cases frankly infected. The more general use of this technic will undoubtedly save mothers that would die if the low or classical operation were done.

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DISCUSSION

Dr. Hagman (Jackson, Miss.): It just happens that my associate, Dr. Shands, recently finished collecting the statistics of our results in the cases treated by cesarean section at the Baptist Hospital at Jackson, Mississippi, since 1922, when we began to keep permanent records.

These figures only deal with cases which have been treated since 1922. Our idea as to the usefulness of abdominal cesarean section in the treatment of properly selected cases was the same prior to that time. However, no cases are included in the following figures except cases on whom we have complete written records in our Hospital files.

For all purposes in the past thirteen and one-half years, 244 cesarean sections have been done by the various surgeons operating at the Baptist Hospital. The total mortality of this series was five deaths. This makes a percentage of 2.8. Eighty-two of these cases were operated upon for eclampsia or pre-eclamptic toxemia which had resisted medical treatment. Four of these cases died, giving a mortality of 4.87 per cent. Seventy patients were operated upon on account of contracted pelves. None of these cases died.

Forty-three patients were operated upon on account of severe hemorrhage at or near full term. Thirty-six of these were diagnosed as placenta previa and seven as accidental separation of the placenta. None of these died. Six were operated upon on account of the mothers having pulmonary tuberculosis. One of these patients died two weeks after the operation of a pulmonary hemorrhage.

During the thirteen and one-half years, no case of rupture of the uterus has occurred where a previous cesarean section had been done at the Baptist Hospital. Two patients were admitted to the Hospital with a ruptured uterus where former operations had been done elsewhere. Both of these recovered following abdominal section.

The indications for operations in the remainder of cases were varied, including heart disease, locked twins, fibroid of the uterus, or chronic nephritis.

We feel that the operation of cesarean section in selected cases is superior to the more complicated obstetrical procedure with which we as surgeons are not as well acquainted. I think all of us should recognize and take cognizance of our personal limitations. An operation that can be done by a Matas or by Dr. King may not be done so well in the hands of Shands and Hagaman of Jackson, Mississippi. For that reason, I feel those procedures which have worked out satisfactory in our hands are the ones of choice for us to use.

Dr. H. V. Sims (New Orleans): The report brought before us this afternoon shows a great amount of painstaking work on the authors' part. I had the privilege of reading this paper over today, and I was struck by the great amount of statistical work it represents. They have studied over 300 histories individually and classified them, and have figured percentages of morbidity and mortality on all of these 361 cases, which represents a tremendous amount of work that is not presented when there is shown just half a dozen slides.

This paper will be of tremendous importance to the whole Society when it is published in complete form, so that each one of the members of the Society will have the opportunity to sit down, as I did for an hour or two this morning, and study this over and see the vast amount of tremendously important material and research work it covers. The conclusions are all in the paper and are brought out very clearly. They are not based upon opinion. The figures are there; they are unmistakable.

That is also true of Dr. Matas' paper, if I may have the privilege of saying a word along those lines, too. Think of the vast amount of research work that represents. A paper of that kind, by the way, should be presented to the whole Society, as the oration of the evening, or something like that. We will all enjoy that, too, I am sure, when it is read and we can digest the historical facts in it.

I was a member of the committee of the Orleans Parish Gynecological and Obstetrical Society that reviewed the cesarean sections of New Orleans from 1922-26 inclusive in all the hospitals in New Orleans. At that time, we reviewed a total of 291 cesarean sections. There was a mortality at Charity Hospital of thirty per cent at that time. At the present time, the mortality is eight per cent. Our work was of some value then, just as this work will be of tremendous value today. Whenever the mortality rate in an institution can be reduced in eight years from thirty per cent to eight per cent, there is something of value in digging into the statistics. As a matter of fact, none of us knows what our results are unless we look back on the case records and see what the mortality rate and the morbidity rate is for a particular procedure. Then we will know whether we are getting satisfactory results. The figures show, and there are more cesareans now, by the way, 361, that the mortality in that institution is eight per cent instead of thirty per cent.

At the time we reviewed the cesareans in all the hospitals in New Orleans, from 1922-26 inclusive, the mortality for all the hospitals was sixteen per cent. We arrived at certain conclusions at that time, which I might mention here in closing because I think they still hold good.

A maternal death rate of even ten per cent is too great a risk to which to expose parturient women, and we would suggest that careful consideration of the following points in every instance in which cesarean section is contemplated will aid materially in reducing it:

a. Operation only on strict and established indications.

b. Consideration of the possibilities of vaginal delivery before abdominal delivery is decided upon in the non-elective cases.

c. Strict differentiation of cases into infected and non-infected, the former being handled by the low cervical (laparotrachelotomy) or the Porro operation, according to indications.

d. Delivery by the vaginal route in those cases where the complication of pregnancy which demands prompt evacuation of the uterus may be handled with equal safety to the mother by this method, particularly when the child is premature and its viability doubtful.

We also recommended at that time (it is not embodied in this series of recommendations) that no cesarean section be done in any of the hospitals without the patient having the benefit of a consultation. I personally have followed that faithfully since then, and have never had cause to regret it in a single instance. The value of a consultation in these doubtful cases is extremely important.

In figuring our fetal mortality and fetal morbidity, maternal mortality and maternal morbidity in Louisiana, the figures this morning showed that we are second only to Florida in the United States in high death rate among mothers, and high fetal death rate. There is one disturbing feature of that. It is something we seem to dodge in all our discussions, but I think it is quite a contributing factor, and that is the large percentage of obstetrical cases in Louisiana that are handled by midwives. Those cases, handled by untrained midwives, in many instances under the most unsatisfactory conditions, undoubtedly carry a high maternal morbidity and mortality and fetal morbidity and mortality. But when obstetrical deaths for the year are figured out in Louisiana, they are not differentiated, so we carry that burden on our back. Whatever it is, it is credited to the medical profession.

The method of combating that, I want to suggest to you. In closing, I will mention that there is a great movement afoot now. The American Committee on Maternal Welfare has been organized a number of years. It is a very active committee under the chairmanship of Dr. Fred Adair, who is devoting a great amount of personal attention to this great movement. He has, at the present time, organized state committees on maternal welfare. Our Louisiana State Medical Society appointed one last year. Dr. King is chairman, and I am secretary, and we have members throughout the state. This movement, I believe, will help to solve this great problem at some time in the future, because our Federal Government has passed a bill called the Social Security Bill and under that bill provisions are made for maternal and infant welfare. There are maternal welfare and child welfare provisions under one section of that bill. Funds have not been provided, but they will be sometime in the future. The Louisiana committee will work in conjunction with the state boards of health and other agencies, and I believe we will accomplish a great deal some time in the future in reducing maternal morbidity and mortality.

Dr. Rudolph Matas (New Orleans): In speaking of consultations I am in thorough agreement with Dr. Sims. In this connection there is one consultation that is worth quoting. This is the story told by Richmond of Newton, Ohio,—one of the first to perform the operation in America. He was in the wilderness in the midst of a storm with a woman in convulsions, and unconscious. He said a cesarean was the only thing to do. There was no other way of delivering that baby. He had never performed the operation. He was a primitive surgeon, but a missionary and a preacher. So he took God in consultation, and he went on his knees and begged for divine inspiration and counsel, and then proceeded with the operation with composure. He was not able to extract the baby. He had to divide the baby in parts in order to extract it. Yet that woman recovered under those conditions, and thirty days after she greeted him at the door as her saviour†

Probably many have held the same consultation but have never recorded it.

## THE SURGICAL TREATMENT OF SCLERODERMA*

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Even a perfunctory perusal of the surgical literature during the past decade clearly indicates the ideal and trend of modern surgery, which may be characterized by a continuous attempt to comprehend better the disturbed physiologic functions consequent to the more obvious pathological processes. This undoubtedly accounts for the constantly increasing number of previously considered non-surgical diseases rapidly entering the ever-widening realms of surgical endeavor. A characteristic example of this progressive trend is the considerable attention directed by surgeons throughout the world to scleroderma which until relatively recently has been gladly relegated to the dermatologist.

Scleroderma is the term applied to the syndrome characterized by sclerosis, induration, and pigmentation of the skin which may be localized or generalized and frequently associated with asthenia, digestive disturbances, arthritis, muscle atrophy, and other symptoms depending upon the gravity and degree of involvement. It is considered inopportune to attempt here a detailed review of the etiology and pathogenesis of this disease which remains yet in a state of confusion and bewilderment. This presentation will be confined to a discussion of the surgical therapeutic considerations as based upon the experimental investigations and clinical observations made in Professor René Leriche's Clinic in Strasbourg, France. A more detailed review of these investigations and the observations made upon 26 cases has been recently published elsewhere.[1]

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*Read before the Orleans Parish Medical Society November 23, 1936.

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At present there are two available procedures in the surgical treatment of scleroderma: sympathectomy and parathyroidectomy. Although this may at first appear perplexing, nevertheless both procedures are based upon a rational consideration of certain facts and observations which undeniably have some pathogenic significance. The rationale for the conception that the sympathetic apparatus is of pathogenic significance in certain forms of scleroderma and therefore that sympathectomy is indicated as a therapeutic procedure is based upon a number of experimental and clinical observations. In a large number of cases of scleroderma the onset is characterized by vasomotor disturbances which so closely resemble Raynaud's disease that this diagnosis is frequently made. Kaufman[2] calls attention to this as particularly true in the symmetrical type of scleroderma, and O'Leary and Nomland[3] observed these characteristic preceding vasomotor disturbances in over one-third of 103 cases. The spontaneous improvement which often follows febrile reactions and the transportation of these patients to warmer climates would seem to corroborate clinically this vasospastic element. Histopathologic studies show definite changes in the arterioles and capillaries (Matsui,[4] Sannicandro.[5]) The pronounced influence of the environmental temperature upon the flow of blood in the skin of certain forms of scleroderma has been repeatedly demonstrated by Brown, O'Leary, and Adson,[6] Leriche and Fontaine,[7] and Johnson and Hedges.[8]

Because clinical observations indicated that there was a vasospastic element in certain forms of scleroderma, Leriche,[9] as early as 1922, proposed the interruption of the sympathetic fibers to the vessels as a therapeutic procedure in this form of the disease and a year later Brüning[10] reported the first case treated by this means. Other reports soon followed by Enderlen[11], Horn[12], Kappis[13], Leriche[14], [15], and more recently by Adson, O'Leary, and Brown[16].

In a recent publication Leriche, Jung, and DeBakey[1] reviewed the results of sympathectomy performed in Leriche's Clinic with follow-up reports in some cases for as long as nine years. Of the 13 cases in which sympathectomy had been performed, there was marked improvement in 5, or 38.4 per cent, moderate in 4, or 30.7 per cent, slight improvement in 1, or 7.6 per cent, and no improvement in 3, or 23.7 per cent; in general, approximately two-thirds of the cases presented some degree of improvement. Mayo and Adson[17] arbitrarily divided their cases of scleroderma into three groups, depending upon whether the vasomotor phenomena preceded the disease, appeared simultaneously, or developed later. They observed that the greatest percentage of improvements following sympathectomy was obtained in the group in which the vasomotor phenomena preceded the disease, and therefore, emphasized the importance of selecting for operation those cases of scleroderma which show pronounced vasospastic phenomena, especially preceding the cutaneous manifestations. Although this is undeniably an important factor even in those cases which might be termed the Raynaud-scleroderma syndrome, complete failures following sympathectomy are not infrequent. In general it may be said that those cases most suitable for sympathectomy are the early cases in which the cutaneous lesions are not pronounced, in which the joints are not severely involved, and in which vasospastic phenomena are the conspicuous features.

That a disturbance in equilibrium of the sympathetic apparatus is not the only factor of pathogenic significance in scleroderma has been shown to be an indisputable fact, and it is for this reason that attempts were made to determine what other factors play prominent roles in its etiology. In 1929, Pautrier and Zorn[18] observed a hypercalcemia present in all of the six cases of scleroderma which they studied. Almost simultaneously this same finding was noted by Naegeli[19] in all of 20 cases which he studied, and by Michon and Boheme[20] in 48 of 65 cases. Similar observations were followed in the literature by Jung and Hakki,[21] Milan,[22] Weissenbach et al,[23] Kennedy,[24] Pernet,[25] and others. However, hypercalcemia is not a constant finding, and some observers have noted even a subnormal blood calcium in patients with scleroderma. Leriche, Jung, and De Bakey[1] have shown that this does not detract from the significance of hypercalcemia in scleroderma, as it has been shown experimentally that in chronic hyperparathyroidism, the hypercalcemia is only temporary (Jaffé and Bodansky[26].) If scleroderma is to be considered as a chronic disturbance in parathyroid function evolving over a long period of time, the hypercalcemia which may have existed during the early stages may no longer be present, just as in experimental chronic hyperparathyroidism.

The theory that the parathyroids play a prominent role in scleroderma is also strengthened by the investigation made upon the cutaneous changes occurring in experimental hyperparathyroidism. Selye[27] and Shelling, Asher, and Jackson[28] observed that the injection of parathormone in young rats of from one to two weeks of age produced cutaneous changes which anatomically resemble scleroderma. Leriche, Jung, and Sureyya[29] similarly demonstrated a marked arrest in growth, thickening and induration of skin with pronounced loss of hair, an increase of the water content of the skin, an increase of the calcium content of the skin of from two to three times normal, histologic changes in the skin characterized by destruction and scar tissue infiltration, marked calcium deposition, and a pronounced atrophy and exfoliation of the dermis. Leriche and Jung[30] have also shown that the skin taken from normal areas and from involved areas on the same patients in the localized form of scleroderma contains from twenty to thirty per cent increase of calcium content in the sclerodermatous regions. Skeletal changes have also been shown by Leriche and Jung[30] as a not infrequent manifestation of scleroderma. They called attention to the fact that in many cases of scleroderma there is a diffuse decalcification as revealed by roentgenographic studies which is usually more pronounced in the extremities and frequently localized to the hands and feet, especially the phalanges, thus again demonstrating a disturbance in calcium metabolism and reflecting parathyroid dysfunction. Aside from these phenomena, a pronounced hypotonia and asthenia frequently observed in patients with scleroderma are also highly suggestive of hyperparathyroidism and calcium metabolic disturbances.

Because these clinical and experimental observations seemed to indicate that in scleroderma there is a definite physiologic disturbance in the calcium metabolism, suggesting a hyperfunction of the parathyroids, parathyroidectomy was considered a logical therapeutic procedure. It was with this basic consideration that Leriche and Jung[31] performed this procedure in scleroderma for the first time in January, 1931. The encouraging results obtained in this patient, who had an advanced and generalized form of scleroderma, justified the further trial of the procedure. In a recent publication by Leriche, Jung and De Bakey[1], 13 cases of scleroderma in which parathyroidectomy was performed were reported, and although these patients had a severe generalized and advanced form of scleroderma, definite improvement followed the operation in over 90 per cent. Thirty-eight per cent of the cases showed marked improvement, 53 per cent showed moderate improvement, and only one of the 13 cases presented no improvement. A number of these cases had follow-up reports for from two to five years after surgical intervention, and all these patients not only maintained the improvement which immediately followed the operation but have continued to improve. Two of the patients examined two and five years, respectively, after operation were completely relieved of all clinical manifestations.

Leriche[32], [33] has frequently called attention to the combination of parathyroidectomy and sympathectomy in the treatment of certain forms of scleroderma and has suggested that this is particularly indicated in those forms of scleroderma characterized by symmetrical lesions, especially of the extremities, and in which the vasomotor disturbances are a prominent feature.

### SUMMARY AND CONCLUSIONS

1. There are at present two available procedures in the surgical treatment of scleroderma: sympathectomy and parathyroidectomy.

2. The rationale for the conception that the sympathetic apparatus is of pathogenic significance in certain forms of scleroderma, and therefore, that sympathectomy is indicated as a surgical procedure, is based upon the facts that in a large number of cases of scleroderma the onset is characterized by vasomotor disturbances closely resembling Raynaud's disease, that spontaneous improvement often follows febrile reactions and transportation of these patients to warmer climates, that histopathologic studies reveal definitive vascular changes, and that the flow of blood in the skin of these patients is markedly influenced by environmental temperatures.

3. Sympathectomy is followed by clinical improvement to a greater or lesser degree in approximately two-thirds of the cases. But one is forced to the conclusion that a disturbance in the equilibrium of the sympathetic apparatus is not the only or even the most significant factor in the pathogenesis of scleroderma.

4. The rationale for the conception that a chronic hyperfunction of the parathyroids is of pathogenic significance, and therefore, that parathyroidectomy is indicated as a therapeutic procedure, is based upon the observations that hypercalcemia is frequently found in certain forms of scleroderma, that cutaneous changes clinically and histologically resembling scleroderma have been experimentally produced by injection of parathyroid extract, that studies of the skin in certain forms of scleroderma show an abnormal increase of calcium content, that skeletal changes are not infrequently encountered in scleroderma, and that pronounced hypotonia and asthenia are frequently observed in certain cases of scleroderma, thus suggesting calcium metabolic disturbances and reflecting parathyroid dysfunction.

5. Following parathyroidectomy clinical improvement was noted in over 90 per cent of the cases.

6. Sympathectomy may be combined with parathyroidectomy in those patients with scleroderma characterized by symmetrical lesions, especially of the extremities, and having typical vasometer disturbances.

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## DISCUSSION

Dr. Rudolph Matas (New Orleans): Dr. DeBakey's excellent paper proves how well he has profited by his recent experience in Professor Leriche's Clinic. It is indeed an enviable privilege to have shared in the activities of that eminent surgeon. I know of no clinic that is more prolific in original contributions of value to surgery than the schools of Lyons and Strasburg, where Dr. Leriche presides as an inspiring genius over a band of young and devoted co-workers.

Dr. DeBakey has brought us a bit of that clinic with a sample of his own work which reflects, I am pleased to say, great credit on his training at Tulane.

His paper impresses me retrospectively as an illustration of the enormous progress that has been accomplished in recent years in the knowledge of the parathyroids. It takes me back to my own professional beginnings, for it was in 1880, the year of my graduation in medicine, that Ivor Sandstrom, a Swede, discovered the parathyroid glands as independent anatomical entities, though Pirquet and others had previously recognized them, but merely regarded them as aberrant or accessory thyroids. It was more than ten years before the vital importance of these small glandules to the health of the organism was at all appreciated by surgeons and clinicians, for it was not until 1890 that Gley, of Paris, first made known his epochal discovery of their relationship to tetany. I have reason to remember these dates because it was in March, 1889, that I had occasion to review the status of the surgery of the thyroid in connection with the first total thyroidectomy performed at Charity Hospital and in the state, in October, 1888.*

The operation was for a primary cancer of the thyroid and the recovery was remarkably free from the postoperative complications that we even now expect from a total extirpation of the gland.

At that time, the frequent occurrence of tetany as a consequence of thyroidectomy had been revealed by the observations of Billroth and his pupils, Von Miculicz, Wolfler, Von Eiselsberg, by Reverdin, Kocher, and other Swiss surgeons who were among the first to do total thyroidectomies for goiter. When I operated in 1888, no one thought of connecting the parathyroids with tetany, as Gley did not announce his discovery until 1891.

It is evident, therefore, that the total thyroidectomies that escaped from tetany owed their safety solely to the fact that a sufficient amount of parathyroid tissue remained to prevent this disaster. The preoccupation of surgeons at that time (1888) was the danger of myxedema, which the researches and observations of Reverdin and Kocher, in 1882, had made an almost obligate consequence of a thyroid deficiency (cachexia, thyreopriva), but of the parathyroids and tetany not a word was spoken.

Going a step further, I recall a visit to the Hunterian laboratory of Experimental Surgery at Johns Hopkins, in 1907, when I had the good fortune to see some of Dr. Halstead's experiments on parathyroid transplantation which gave a most impressive demonstration of the protective effect of even a minute particle of parathyroid tissue in preventing the development of tetany. At the same time, I learned of MacCallum's and Voigtlin's memorable discovery that tetany after thyroidectomy was caused by a deficiency or loss of the parathyroids, which they demonstrated were the controllers of calcium metabolism. I recall seeing parathyroidectomized dogs which had survived the extirpation of the parathyroids, but which had been kept alive and free from tetany by being fed systematically with fresh ground bone as a calcium adjuvant in their food.

This was, then, the beginning of that marvelous parathyroid therapy which, in its interpretation of the parathyroids in calcium metabolism, has given us a control of tetany on the basis of a hypocalcemia, and has opened a new and vast field of application in a growing number of disorders in which the influence of the parathyroids could not have been suspected until the present methods of blood calcium determination had been perfected.

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*N. O. Med. & Surg. J. 16:662, 1889. The fact that this was the only operation on the thyroid in a total of about 88,000 patients treated at Charity Hospital in 1889 will suffice to show how rare were the indications for thyroid surgery in our population as they were understood by the surgeons of that time.

In the growing list of disorders that are related to parathyroid dysfunction, whether by excess or deficiency of function (hyper and hypocalcemia), Leriche and his co-workers have not only blazed a new path in endocrine pathogeny, but a new source of surgical relief in which scleroderma appears to be one of the latest therapeutic beneficiaries.

In presenting the pathogenic relation of parathyroids to scleroderma, Dr. DeBakey has introduced us to the subject from the viewpoint of the Leriche school, which does not claim that scleroderma is caused solely by hyperthyroidism, but modestly offers impressive evidence to show that parathyroidectomy, with or without sympathectomy, is capable of giving permanent relief to a considerable number of the victims of this otherwise intractable and incurable disorder. Fortunately, scleroderma is not a common disease. Like most surgeons, it has been my fortune to see only its most advanced and intractable types. For this reason we must welcome the message so ably brought to us by Dr. DeBakey as a new hope and source of encouragement to the victims of this distressing and grave disorder.

Dr. DeBakey (In conclusion): I sincerely and gratefully appreciate the distinct honor Dr. Matas has so generously bestowed upon me by opening the discussion. His inimitable manner of excursus, his scholarly disquisitions, and his compendious but thorough and perspicuous dissertations on any subject are always so enjoyable and vigorously stimulating. It makes me very happy to have been able to bring him here before us tonight.

In closing may I add that in that type of scleroderma characterized by symmetrical lesions, especially of the extremities, associated with vasomotor disturbances, Leriche has combined sympathectomy with parathyroidectomy.

## COLOR MOTION PICTURES OF THE LARYNX*

FRANCIS E. LeJEUNE, M. D.
New Orleans.

Color motion pictures of laryngeal pathology are of inestimable value provided there is faithful color reproduction. Russel and Tuttle[1] reported successful color movies of the larynx in 1930. As they were principally interested in phonetics they reported no attempts at color photography of laryngeal pathology. In 1932,[2] I reported and presented my first successful attempts of motion picture photography of the larynx. Since then I have been successful in obtaining numerous views of interesting laryngeal cases, in black and white photography, which have been presented to the profession on several occasions.[3] The enthusiasm and interest with which these black and white movies were received whenever presented, stimulated a desire to obtain color movies of the larnyx. Several problems immediately presented themselves. I soon found out that whereas my illumination for black and white pictures was adequate, for color photography fully 30 per cent more illumination was necessary. This phase required considerable more experimentation before successful pictures were obtained.

When I began experimenting with color photography for use in larnygeal pictures there were two methods available. Both had serious drawbacks. The use of the Kodacolor method denied me the privilege of having negatives in the event something happened to the original film. The other method was known as the Morgana method and while negatives were available, filters were necessary for the taking of and also for the projecting of the pictures. On the film both of the above mentioned methods photographed a black and white picture but when projected a faithful reproduction of natural colors was obtained. As negatives were essential for the preservation of the pictures, I naturally selected the Morgana process. My first results with this new method were very unsatisfactory, but as I gained experience better results were obtained. I must frankly confess that even today I find it much harder to obtain a good color picture of the larnyx than the ordinary black and white picture.

The recent introduction of the Kodachrome and Dufay films, in which the color features are incorporated in the emulsion on the film, raised the hope that an answer had been found to a fervent prayer and that color photography of the larynx was assured. Numerous attempts were made with the Dufay and Kodachrome films and while fairly good pictures were obtained, they were invariably underexposed. The problem of adequate illumination was again attacked. Various combinations were used in efforts to obtain additional illumination and while some good pictures were obtained with these new films, the final results were unsatisfactory. In motion picture photography of the larnyx it becomes absolutely necessary to have and preserve a negative film from which any desired number of prints may be obtained. If photography of the larnyx is ever to play any part in the teaching of laryngology to the undergraduate student, then it is imperative that prints be made available to those desiring them for teaching purposes. Kodachrome and Dufay films cannot be duplicated in natural colors. Recently it was announced that black and white duplicates could be obtained from the original film. It is to be hoped that before long color duplicates will be made available.

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*Read before the Orleans Parish Medical Society November 9, 1936.

Meanwhile I continued using the Morgana process for obvious reasons and also because I was successful in obtaining some excellent pictures. Tumors of the larynx may well be considered as comparatively rare. Even in the larger clinics they are seen infrequently. To obtain an accurate reproduction of these lesions in normal colors was most desirable. Over a period of years numerous lesions occurring in the larnyx have been photographed in normal colors and these are presented for your observation. In the majority of the pictures the color reproduction is faithful, in a few scenes the red appears as a light pink.

The first requisite in obtaining pictures of the larynx is a good exposure of the laryngeal structures. The camera will only reproduce that which can be seen by the eye. My best results have been obtained by using the suspension laryngoscope to expose the larynx to direct vision. This instrument, devised by Killian and perfected by Lynch permits a most excellent view of the larynx. In addition to the excellent view obtained, it also permits the free use of both hands in surgical procedures within the larynx. The use of both hands is of tremendous importance when dealing with certain types of lesions in the larynx.

My preference for general anesthesia is responsible for the fact that the vast majority of my cases are done under a combination of gas, oxygen and ether anesthesia. Complete relaxation is necessary for successful laryngoscopy, regardless of the type of laryngoscope used. Exposure and visualization of the anterior commissure is essential in every complete laryngoscopy.

In the majority of the pictures presented, the first view shows the larynx and the lesion as seen by direct laryngoscopy. The tumor or lesion was then removed or cauterized, as indicated, and then a second view, a postoperative view, was made showing the results of surgical interference.

In the second picture presented, that of a small fibroma of the right vocal cord, a most interesting phenomenon is observed. The glottic and subglottic regions are well exposed. Upon exhalation a luminous gas is seen being exhaled from the trachea. The anesthetic used in this case was a mixture of ethylene gas, oxygen and ether. The luminous gas seen on expiration is obviously this mixture.

Two views of foreign bodies have been obtained. One shows a piece of beef bone embedded in the pyriform fossa and the other, a piece of breast-bone of a chicken wedged between the vocal cords in an anterior-posterior position. As far as I have been able to determine these are the first photographs reported of foreign bodies within the hypopharynx or larynx.

Several of the cases presented for observation by means of color motion pictures are thought of sufficient interest to warrant reporting.

## CASE REPORTS

Case 1. Mr. R. E. K., aged 53, was first seen on February 20, 1933, because of hoarseness for the past year. In the last two month's hoarseness had increased considerably. The patient had enjoyed excellent health heretofore. His habits were good; owned and managed a large dry goods store and consequently had occasion to speak considerably. First noticed slight hoarseness over a year ago following a cold at which time he was forced to speak excessively in the due course of business. Hoarseness gradually increased and about two months ago it became much worse. Several physicians were consulted and treatment instituted without any beneficial results. Examination and roentgen ray of chest were negative. Wassermann was negative.

Examination by mirror laryngoscopy disclosed a small growth involving the contact and subglottic portion of the right vocal cord at its anterior third. The superior portion of the cord was covered by patches resembling a whitish exudate. This exudate appeared firm and extended to the contact edges of the right cord. In between the white patches the cord showed evidences of some infiltration. An enlargement of the right arytenoid was observed. In addition further examination warranted the diagnosis of a retention cyst of the arytenoids. The arytenoids as well as the vocal cord moved freely. A diagnosis of an intrinsic carcinoma of the right vocal cord was made. It was realized that the whitish exudate seen on the cord was probably the result of some mycotic growth.

On February 22, 1933, suspension laryngoscopy under chloroform anesthesia was done. Tumor mass on arytenoid dissected out and proved to be a fairly large retention cyst. The edges of the raw surface were sutured. Dr. Seemann, pathologist, whose presence had been requested, examined the larynx and suggested smears and scrapings from the exudate. A more deliberate examination of the lesion at the anterior third showed a decided growth involving the superior and inferior surface of the cord as well as the contact surface. The growth did not involve the anterior commissure. By means of laryngeal fixation forceps the tumor mass, together with the vocal cord, was grasped and dissected out by means of a laryngeal knife. The growth was removed with ample margins on all sides to assure complete excision. As the vocal process did not appear to be involved it was not molested in any way. Following the excision of the cord and its growth, the base was thoroughly coagulated by means of diathermy. The patient remained in the hospital one week and experienced no difficulty except the usual nausea following an anesthetic.

The pathologist reported the culture from the exudate as Monilia albicans and the tumor from the arytenoid as a retention cyst. The growth from the vocal cord was reported as a squamous cell carcinoma grade II; three lesions occurring in one larynx. Two months following the operation the patient was seen again. The right vocal cord was completely absent. There was present at about the junction of the middle and anterior thirds, a small out-cropping of apparently granulation tissue covered on its contact surface with a whitish exudate. Under suspension laryngoscopy, this granulation tissue was removed and its base again coagulated.

The patient has been observed on several occasions, the last time being in January of 1936, at which time there was evidence present of pseudocord being remanufactured by nature; voice good but husky. There were no glands palpable in the cervical region; health excellent.

Comment: Three lesions occurring in a larynx simultaneously is a rather unusual condition. Retention cysts do not as a rule recur after complete removal and the Monilia albicans was effectively controlled by large doses of iodides given over a long period of time. Clinically there are no evidences or manifestations of possible recurrence of the carcinoma, still, insufficient time has elapsed to report this case as a complete cure.

Case 2. Mr. B. H. J., salesman, aged 37, was seen on February 10, 1935, referred by Dr. Oliphant with a diagnosis of tumor of larynx. Patient stated he first became hoarse in 1929. The hoarseness gradually became more pronounced and interferred considerably with his salesmanship. In the last two months he experienced some mild dyspnea upon exertion and consulted his family physician who examined the larynx by means of a mirror and made a diagnosis of a tumor.

Indirect laryngoscopy showed a large cystic fibroma, about the size of a marble, attached to left vocal cord and which bobbed in and out of glottis with each inspiration and expiration.

On February 20, suspension laryngoscopy was performed, exposing larynx to direct view. Fibroma was attached to anterior two-thirds of left vocal cord and was removed by dissection. Bleeding areas were controlled and the entire area touched with tincture benzoin. Recovery uneventful; vocal rest for ten days at which time reaction had subsided considerably. By March 8 his voice was very good and cords approximated in median line. There was still some hyperemia of left cord, probably due to excessive use of voice. On April 22 larynx had returned to normal and voice was normal. Appearance of vocal cords normal.

Comment: It is astounding in this day and time that an intelligent individual should have a progressive hoarseness for a period of five years and only seek medical relief for resulting dyspnea. His elation at the simplicity of removal made him bemoan the fact that removal had not been instituted earlier. Fortunately this case was a benign tumor, reported by the pathologist as cystic fibroma. We should strive to make the public at large more conscious of the hazards of persistent hoarseness.

Case 3. Mr. H. G., aged 45, was referred with a diagnosis of a foreign body. While eating chicken stew had a violent choking spell followed by severe coughing. Marked hoarseness and a sense of discomfort were present. Examination by indirect laryngoscopy showed a foreign body wedged in the glottic chink extending antero-posteriorly. Under local anesthesia direct laryngoscopy performed showing foreign body in position. It was an angular bone, one end of which was firmly wedged underneath the anterior commissure while the other end was fixed in the intra-arytenoid space. Such a good view was obtained that a picture was taken after which the foreign body was easily removed.

Comment: This case is reported not because it presented any problems, for the removal was simplicity itself. After searching the literature I have reached the conclusion that this picture represents the first foreign body photographed within the larynx. For this reason it is reported.

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### DISCUSSION

Dr. W. A. Wagner (New Orleans): I am sure no one in this audience has enjoyed this presentation more than I, in spite of the fact this is the third time I have viewed these pictures. The outstanding feature in such pictures is the fact that they not only represent conservation of pictures of the patient's larynx, but they really conserve completely the normal and pathologic physiology.

I noticed three physiologic phenomena in these pictures. Every view of the tumors showed one or more of these conditions: (1) an interference in the synchronous vibration of the cords; (2) in the inability of the larynx to vibrate, or (3) in the approximation of the cords. The only view that did not show this was of the normal larynx. Therefore, I would like to stress the point that these pictures brought forth the fact that they preserve some physiology, because when these three conditions exist separately, or together, in a larynx, that individual's voice is affected and normal phonation is lost. Therefore, the moving pictures effectively conserve not only the picture but some physiology. That to me is the most important contribution, other than the opportunity it offers to study the pathologic lesion itself.

No one knows how difficult it is to make moving pictures of the larynx. Those of us experienced in producing moving pictures have found out that it is very simple to photograph an individual, or a flat field of operation, but to photograph a field such as the larynx located down in the depths of the oral cavity is difficult because illumination becomes an important factor. I can remember ten years ago when Dr. Lynch and I began photographing the larynx, we met this particular difficulty. The first time I became interested in moving pictures was in an attempt to photograph the larynx. I regret that I did not bring some of that film here tonight to show you what we were trying to do ten years ago in order that you might see the contrast between a poor film and a good one. Permit me to thank Dr. LeJeune for this splendid accomplishment.

There was in addition to the three physiologic phenomena, a physical phenomenon in viewing the pictures, which I also noticed in New York at the meeting of the Academy of Ophthalmology and Otolaryngology. In passing my hand before my eyes and changing the amount of speed with which I moved it, I could view the picture in green, or I could view the picture in red. Before, I was just talking about the physiologic value of the picture, but this physical phenomenon I was unable to explain, therefore, I would like to ask Dr. LeJeune if he could explain it, as not being familiar with this type of photography I am lost.

In taking movies of the larynx, I accidentally made some pictures recently of the larynx with Kodachrome. I used the colored filter and they came out fairly well. Then I attempted Kodachrome-A, the new film, which is used without the filter and I was able to photograph the normal larynx. I believe Kodachrome-A is the ideal film. As Dr. LeJeune stated, it is slower and consequently requires more illumination. I have made several films and have a piece of film in my pocket made with Kodachrome-A that is a very nice photograph. I will leave it here for anyone to see.

I know how tedious this problem is because I have been through it. I have attempted to photograph deep-seated wounds in operative procedures and met with much difficulty from beginning to end. Dr. LeJeune has shown you the nicest pictures I have seen by far. I would like to state that I am well convinced Dr. LeJeune deserves priority for moving pictures of the larynx, and I am not trying to claim priority, but I believe this film I have just shown you represents the first film of the larynx made in Kodachrome-A.

Dr. F. E. LeJeune (In conclusion): In answer to Dr. Wagner about the phenomenon he observed, I might recall to his mind the fact I mentioned, that in taking this picture with the process I used, I had to employ a filter. The filter is red and green. In projecting the picture, the picture is also projected through a revolving filter. The filter colors are several reds with quite a few greens, and, I think, one blue. Probably by passing the hand before the eyes you can synchronize with the red in the filter, or with the green. That is the only way I can explain the phenomenon that he can see the picture in red or green.

Relative to Kodachrome films, when they first came out I attempted to take pictures of the larynx and I have some excellent pictures which are incorporated in my black and white photographs of the larynx, some of the normal and some of the pathologic larynx. However, the first film that came out in Kodachrome was so slow that I felt I could not afford to waste a good case by trying to get a picture. There is another bad feature of the Kodachrome films. Until recently you could not get a negative of a Kodachrome film; in the event of some injury to the film it was impossible to get a duplicate. Recently the Eastman people have announced that they can give you black and white duplicate pictures. I understand also at the present time it is possible to get colored duplicates made by some film company in California, but unfortunately, only at a prohibitive price.

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# SIMPLIFIED PROJECTION OF ROENTGEN-RAY FILMS*

E. C. SAMUEL, M. D.

and

E. R. BOWIE, M .D.
NEW ORLEANS

The object of this demonstration is to bring to your attention something of the possibilities of the so-called miniature camera in the field of medical illustration. While we have been primarily interested in the reproduction of radiographs, their printing and projection, this is only a part of the field in which this camera is of value to the physician, the surgeon, the medical man in any field, who wishes an efficient method of visual record and demonstration.

The equipment may be simple or elaborate depending on your willingness to indulge yourself in this accessory field of medical photography. Several cameras of domestic manufacture are available which will cover the field more or less satisfactorily. The most complete satisfactory cameras are of German manufacture and of these, the one which is provided with a completely removable back, allowing ground glass focussing, when desirable, as well as permitting, on occasion, the use of small glass plates, is very definitely the camera of choice for such scientific work. Some few additional accessories further than the camera, such as reproducing stand to fix the camera in place and allowing accurate measurement of the distance of the camera from the object, supplementary lenses allowing a reduction of the distance of the camera from the object, such accessories are desirable but not essential.

The films to be shown were assembled rather hurriedly and they have all been made without any accessory aids. All are the result of exposures of from 1/5 to 1/25 second, using as a light source the ordinary roentgen ray illuminator. The camera was held in the hand, focussing being done by the built-in range finder of the camera.

Very definite improvement in the projected images would have resulted from the use of the accessories mentioned. In spite of this fact, it is believed that it will be found that comparison with the usual glass lantern slide will show our films to compare favorably therewith.

The image is projected from a strip of film of the standard 35 mm. motion picture size. The usual roll of film used for the camera provides for 36 exposures. The film is of especially fine grain to provide for satisfactory enlargement of the image and must be developed in a special developer. Since the film gives us a reversed image when developed it may be desirable to have a positive print made but as you will see from a comparison of the original negative film with a positive print, even this additional step does not seem necessary.

The 36 exposure strip of film for projection can be made up in any way desired. It should be possible to incorporate in the same film roentgen ray films, diagrams and charts, pictures of the patient and apparatus. Color films are available and give satisfactory reproduction of color. Various types of projectors are available for these films, the better types of which although still easily portable, will yet project an image sufficiently large for a room of this size.

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*Read before the Orleans Parish Medical Society October 12, 1936.

# PYOGENIC OSTEOMYELITIS OF THE SPINE*

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New Orleans

Improved methods of diagnosis have brought to my attention an increasing number of pyogenic infections of the spine. Jacob Kulowski, in a recent article, reported a series of 60 cases of his own and 42 others obtained by questionnaire, and added the statement that upwards of 300 cases have already been reported. As, in the past, it seems that pyogenic osteomyelitis was confused with tuberculous osteomyelitis, there must be expected a rapid increase in the number of cases collected in the future.

The case reported here presents unusual features, the outstanding one being that, although osteomyelitis was suspected and the patient was repeatedly roentgen rayed, the lesion was not found until he had practically recovered.

## CASE REPORT

C. E. M., a white male, 53 years old, a river captain by occupation, was first admitted to the Marine Hospital on March 5, 1932, his chief complaint being nervousness of indefinite duration. There were no other complaints. Objectively he gave the impression of an anxiety psychosis, which was attributed to his wife's illness. He remained under observation for two weeks. The course was uneventful, and the patient gradually regained his confidence after a visit by his wife, whereby certain domestic relations were corrected.

Examination failed to disclose any abnormality. Syphilis had to be considered in the differential diagnosis, as there was a history of a penile lesion 10 years previously. The laboratory examinations gave no positive information.

The neurologic consultant classified the condition as a transient, depressive disorder, functional in type. The patient was discharged as improved and fit for duty on March 17, 1932.

He was readmitted to this hospital on July 5, 1934, approximately 28 months after his first hospitalization. Clinically no connection could be established between his two admissions. The chief complaint on this occasion was pain in the left side of the neck and head. It was very severe, dull in type, and involved the parietal, occipital, and neck regions. The onset was 10 days previously, and the cause was unknown. The pain became worse. Frequent exacerbations of a sharp, stabbing pain developed, so that on the day of admission the patient was in a state of prostration.

Physical examination revealed marked tenderness to light pressure over the vertex extending to the left of the parietal suture, over the left occipital bone, and downward to the anterior border of the right splenius capitis and to the border of the left mastoid area. Otherwise the physical examination was essentially negative.

The course of the disease in the hospital was rather severe. The temperature was that of a septic patient, ranging from 38 to 39° C., with irregular peaks. It was not specific in character. The white blood count varied from 10,000 to 23,000, and was predominantly polymorphonuclear leukocytes. The urine on one occasion was positive for casts and albumin, otherwise the laboratory findings were negative. Numerous roentgen rays of the head, neck, spine, mastoids, and various other parts of the body were negative for bone pathology.

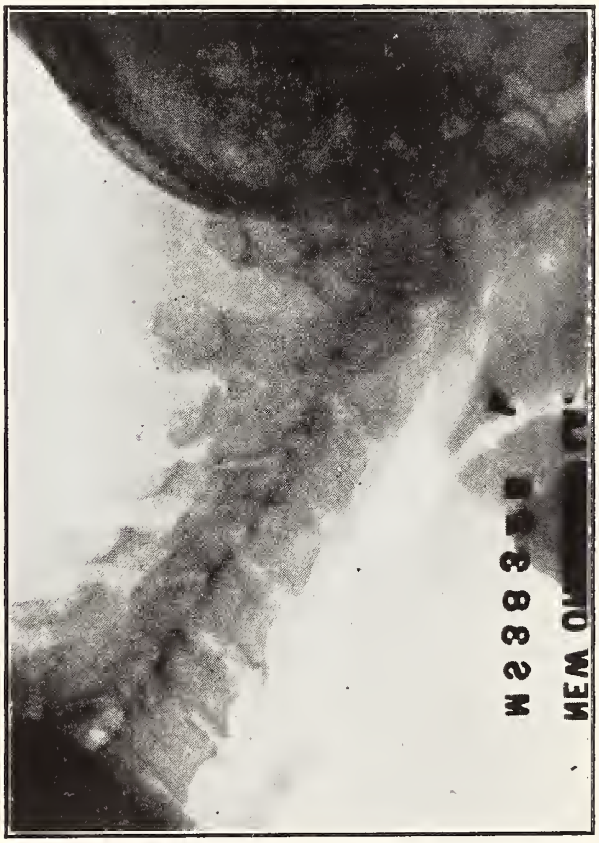

Figure 1. Roentgenogram showing a normal posterior tubercle of the atlas.

The patient had an abscess on the left side of the neck, of undetermined source, which pointed outward between the sterno-mastoid and trapezius muscles as they come together to form the upper angle of the occipital triangle. The etiology of the abscess was considered as being: (a) osteomyelitis; (b) mastoiditis; (c) acute parotiditis; (d) focal infection of undetermined source.

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*From the Department of Radiology, U. S. Marine Hospital, New Orleans and Tulane University.

The abscess was opened on July 23, 1934, 18 days after admission. The pain continued, somewhat less severe but very annoying. A stiff, leather collar had to be specially made to support and immobilize the patient's head. This support afforded relief. Staphylococcus aureas was the only organism found. Clinically, the patient improved slowly following operation, and was discharged on October 15, 1934, with a draining sinus in the neck. He was instructed to continue treatment in the out-patient clinic. Drainage persisted. Osteomyelitis was suspected but could not be proved. Numerous roentgen rays were made in the out-patient department, but none disclosed bone disease. Finally, in April 1935, the patient showed us a piece of bone that had been extruded through the sinus. Now roentgen ray examination for the first time revealed bone destruction and this in the posterior tubercle of the atlas. Shortly afterward the sinus tract healed.

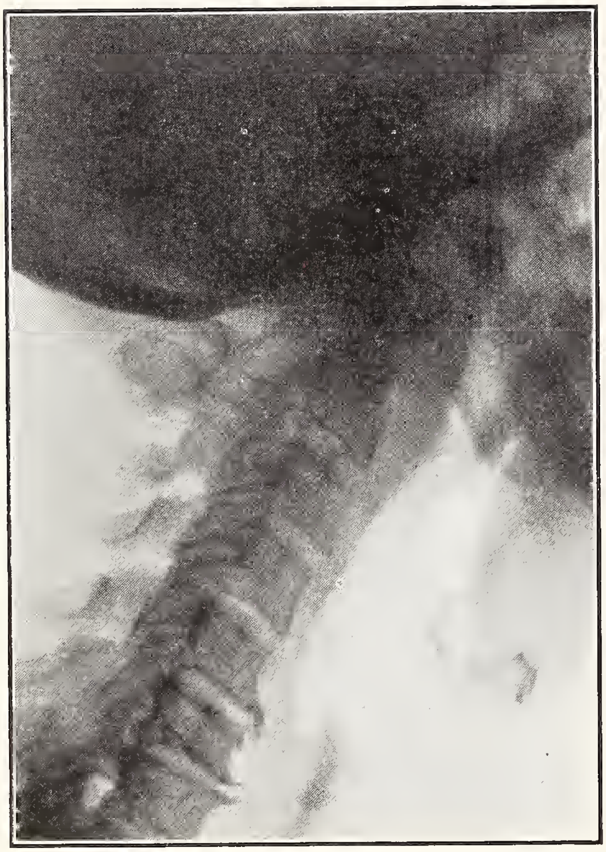

Figure 2. Roentgenogram showing bone destruction in the posterior tubercle of the atlas.

## COMMENT

Pyogenic organisms find their way to the vertebral column by: (a) direct extension from infections in the neighboring tissues; (b) by way of the blood or lymphatics as an infected embolus, from an infected infarct or as a metastasis; (c) by way of a penetrating wound. The infection can lodge anywhere in the vertebrae. In the greater number of cases reported, however, the infection has been found in the bodies of the lumbar vertebrae. This is due to their greater and more direct blood supply and to the ease with which they can be shown in the roentgenogram. Infections in the accessory processes are not as common, because of their lesser blood supply, nor are they as easily demonstrable in a roentgenogram, because these processes are embedded in thick layers of muscles that obscure them and because their shadows are superimposed.

In the spine, as in any other bone, the roentgen ray diagnosis of osteomyelitis cannot be made before there is bone destruction, and it is at best a late diagnosis. The time at which bone destruction becomes visible in a roentgenogram depends on the "balance of power" between the aggressiveness of the infectious organism and the body resistance, and, to a certain extent, on the site of the infection. It is clear, then, that the roentgenograms cannot be of aid in making early diagnosis, but like postmortems and biopsies, they can be confirmatory. It is evident, therefore, that the clinician should be familiar with the limitations of the roentgen ray so as not to place too much emphasis on negative findings.

The burden of proof in early diagnosis rests on the clinical signs and symptoms. The most common route of infection is the blood stream by metastasis. If, in the presence of sepsis, localized symptoms appear in the spine, with or without signs of abscess, osteomyelitis of the vertebrae should be suspected. But if the infection arises from a quiescent, hidden focus, the diagnosis is problematic, uncertain, and sometimes impossible until bone destruction is demonstrable, and this, in some cases, takes months.

When metastases lodge in the vertebrae, two types of symptoms develop; First, septic, accompanied by a high leukocyte count, polymorphonuclears predominating, fever, malaise, muscular pain, headache, and vomiting. These are proportionate to the severity of the infection; second, the localized symptoms of infection within the bone, which cause pain and early disability of the section of the spine involved. Later symptoms depend on the behavior of the local infection: (a) It can remain within the bone, being walled off, and leaving a permanent bone rarefaction (Brodie's abscess); (b) it can break through the cortex, infect the neighboring tissue and form an abscess that may point anywhere, most usually in the back; (c) it can break through into the central nervous system, causing meningitis; or (d) it can break forward, causing peritonitis, mediastinitis, empyema, or a retropharyngeal abscess, depending on the segment of the spine involved.

At the beginning of the paper the statement was made that pyogenic osteomyelitis was often confused with the tuberculous type. A few words as to differential diagnosis seem timely.

Osteomyelitis is generally a metastatic lesion. This is also true for the spine. If the original focus is found, the relationship between the primary and secondary foci can be established. The etiology can then be reasonably suspected and proved by biopsy, culture, or animal inoculation.

When these classical methods cannot be applied, and when the spinal lesion develops from a hidden, inactive focus, the problem is entirely a clinical one.

Tuberculosis is a chronic disease showing little or no systemic reaction and only rarely leukocytosis. Abscesses, if formed, often point far away from the original focus, producing the well known "cold abscess." Bone is destroyed slowly; the vertebral disc goes first. In contrast to this clinical picture is the more rapidly disabling and painful localized lesion showing marked signs of inflammation accompanied by leukocytosis and rapid bone destruction, factors pointing to pyogenic infection.

### CONCLUSION

1. A case of osteomyelitis of the posterior tubercle of the atlas has been presented, and the diagnostic difficulties have been discussed.

2. An attempt has been made to show the proper value of roentgen ray and clinical diagnosis. These are restated in summary: (a) roentgen rays are of no value in early diagnosis. They are useful as confirmatory evidence; (b) clinical diagnosis must be confirmed by other methods.

3. Whenever possible, biopsy, culture, and animal inoculation should be done.

4. In the absence of a primary focus the diagnosis of metastatic pyogenic osteomyelitis of the spine is most difficult.

5. In the case reported, although clinically osteomyelitis was suspected, the diagnosis was not confirmed until bone destruction developed and a sequestrum appeared in the sinus in the neck. The roentgenogram showed the site of the lesion. (Fig. 2).

6. This is believed to be a case of osteomyelitis which developed by extension from an infection in the neighboring tissues, rather than one due to metastasis into bone.

7. The original focus was not discovered.

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# REPORT OF THE PASTEUR INSTITUTE OF THE CHARITY HOSPITAL OF LOUISIANA AT NEW ORLEANS FOR THE YEAR 1936

RIGNEY D'AUNOY, M. D.*
and
JOHN H. CONNELL, M. D.*
NEW ORLEANS

During the year 1936, the Pasteur Institute of the Charity Hospital administered antirabic prophylactic treatment with material prepared as generally indicated by Semple.** Each injection consisted of a 2 mil portion of 4 per cent killed virus-emulsion, except in the case of children under three years of age, to whom a 1 mil portion of vaccine was injected at each treatment.

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*From the Departments of Pathology and Bacteriology of the Louisiana State University Medical Center and the Charity Hospital, New Orleans.

**For the method of production of virus, see Report of the Pasteur Institute for 1931-32. N. O. Med. & Surg. J., 86:236, 1932.

### INJURIES BY PROVEN RABID ANIMALS

*Head Injuiries*: Injections were made twice daily for the first seven days, and once daily thereafter for fourteen days.

*Injuries to Trunk and Extermities*: If multiple and severe, the same treatment was used as for head injuries.

If slight and treatment was begun within six days after injury, treatments were continued for fifteen days, with one injection daily.

If slight and treatment was begun more than six days after injury, treatments were continued for eighteen days, with one injection daily.

### INJURIES BY UNLOCATED ANIMALS

If the injury was received under suspicious circumstances, the same type of treatment was used for a similar type of injury by proven rabid animals. If there were no suspicious circumstances, treatment was given over a period of fourteen days, with one injection daily.

### NO ACTUAL INJURY

If rabid or suspected animals had been handled, treatment was given over a period of eighteen days, with one injection daily.

### TREATED CASES

Three hundred and two cases were treated during 1936. They are classified as follows, according to the suggestion of the International Rabies Conference of the League of Nations, in order that the statistics of various institutions may be compared.

A. Cases in which the animal proved to be rabid (by microscopic and biologic test).

B. Cases in which the animal was diagnosed clinically as rabid.

C. Cases in which the animal was only suspected to be rabid (strayed, destroyed, or in such a condition when received that the brain was unfit for examination).

D. Cases in which the animal was alive and well after an observation period of three weeks, or whose brain was found to be negative when examined after the observation period.

E. Cases in which the patients received treatment without actually having been bitten (patients who handled rabid or suspected animals).

Table I records the number of treated cases in each category and classifies the types of injury.

TABLE I

| | Category 1936 | | | | | |
|---|---|---|---|---|---|---|
| Location of Injury | A | B | C | D | E | Total |
| Head | 14 | 0 | 9 | 0 | 0 | 23 |
| Body | 1 | 0 | 6 | 0 | 0 | 7 |
| Superior extremities | 60 | 7 | 50 | 1 | 41 | 159 |
| Inferior extremities | 45 | 9 | 44 | 0 | 0 | 98 |
| Multiple sites | 6 | 4 | 5 | 0 | 0 | 15 |
| Total | 126 | 20 | 114 | 1 | 41 | 302 |

Table II gives the age, sex and race of the patients and Table III the Parishes whence these patients came.

TABLE II

| | White | | Colored | | |
|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Total |
| Under 1 year | 1 | 0 | 0 | 0 | 1 |
| 1- 2 years | 7 | 3 | 4 | 1 | 15 |
| 3- 4 " | 7 | 6 | 1 | 0 | 14 |
| 5- 9 " | 36 | 20 | 4 | 5 | 65 |
| 10-19 " | 50 | 30 | 7 | 3 | 90 |
| 20-29 " | 24 | 6 | 3 | 3 | 36 |
| 30-39 " | 15 | 15 | 5 | 3 | 38 |
| 40-49 " | 10 | 5 | 1 | 0 | 16 |
| 50-59 " | 5 | 5 | 3 | 2 | 15 |
| 60-69 " | 5 | 3 | 2 | 0 | 10 |
| 70-79 " | 0 | 0 | 0 | 2 | 2 |
| 80 and over | 0 | 0 | 0 | 0 | 0 |
| Total | 160 | 93 | 30 | 19 | 302 |

TABLE III

Parishes

| | |
|---|---|
| Allen | 2 |
| Avoyelles | 13 |
| East Baton Rouge | 11 |
| Jefferson | 44 |
| Iberville | 1 |
| Lafayette | 2 |
| Livingston | 5 |
| Orleans | 168 |
| Plaquemines | 1 |
| Pointe Coupee | 1 |
| Rapides | 5 |
| St. Bernard | 6 |
| St. Charles | 1 |
| St. James | 12 |
| St. John the Baptist | 5 |
| St. Landry | 5 |
| St. Tammany | 4 |
| Tangipahoa | 13 |
| Terrebonne | 2 |
| Vernon | 1 |
| Total | 302 |

Table IV gives the number of days elapsing between the time of injury or exposure and the beginning of treatment, when such information could be obtained.

TABLE IV

| Days | Patients |
|---|---|
| 1 | 70 |
| 2 | 50 |
| 3 | 47 |
| 4 | 34 |
| 5 | 19 |
| 6 | 28 |
| 7 | 18 |
| 8 | 6 |
| 9 | 9 |
| 10 | 4 |
| 11 | 2 |
| 12 | 3 |
| 13 | 1 |
| 14 | 3 |
| 15 | 0 |
| 16 | 2 |
| 17 | 0 |
| 18 | 3 |
| 19 | 0 |
| 20 | 1 |
| 21 | 0 |
| 22 | 0 |
| 23 | 0 |
| 24 | 0 |
| 25 | 2 |
| Total | 302 |

Table V indicates the circumstances of the injury and the type of first aid treatment given in each case.

TABLE V

| | |
|---|---|
| Injury inflicted through clothing | 98 |
| Injury inflicted to bare skin | 204 |
| Iodine applied to site of injury | 3 |
| No local treatment | 171 |
| Phenol, cauterization and serum | 31 |
| Tetanus antitoxin only | 100 |

Table VI indicates the number of animal brains examined and their diagnosis.

TABLE VI

| | |
|---|---|
| Negative | 125 |
| Positive | 66 |
| Unsatisfactory | 12 |
| Total | 203 |

## SUMMARY

A detailed report is presented of the 302 cases treated in the Pasteur Institute of the Charity Hospital during the year 1936.

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## THE STATE MEETING

The fifty-eighth annual meeting of the Louisiana State Medical Society is now a thing of the past, yet it will long live in the memory of those who attended it. The scientific papers were consistently good and certainly above the average of most state society meetings; the scientific exhibits deserve commendation and the commercial exhibits were interesting. The hospitality of the Monroe hosts was unbounded and generous; they provided plenty of entertainment, enjoyable fun and a good time socially in every way.

It is with keen disappointment that it was learned that Dr. Morris Fishbein, the annual orator, would be unable to be present on account of sickness. Fishbein's witty tongue, keen mind and immense fund of information always make him a speaker who is eagerly anticipated. Fortunately President Kostmayer was able to secure as a substitute Dr. W. W. Bauer of the Bureau of Health and Public Instruction of the American Medical Association. Dr. Bauer is a speaker of force and he substituted magnificently for the absent orator of the day.

On account of the lateness of the state meeting it is impossible to do more than print in another section of the Journal a list of the officers elected. Further comment will appear in the next issue of the Journal concerning this new officerial group. In the meantime we extend to them our felicitations and best wishes. They have been honored by their fellow members, we know that they merit this honor and will prove faithful to their trust. Good wishes to them for the coming year.

## SYPHILIS

The new Surgeon General of the United States Public Health Service, Dr. Thomas Parran, has stated that one of the objectives in his term of office, and a very important one, will be to arouse the medical profession, the laity as well, to the importance of the extremely common disease, syphilis. In furtherance of this plan recently there was held in Washington, "a conference on venereal disease control" from which emanated some very important studies, articles and suggestions. One of the most valuable papers was that of Vonderlehr,* Assistant Surgeon General of the U. S. P. H. S. He showed what had been done through the provisions of the Social Security Act to extend venereal disease control throughout the country. Under this act many states have increased the money allotted for the control of venereal diseases, some have adopted comprehensive programs and others have done nothing. Eleven states in all report no funds as being allocated for this purpose.

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*Vonderlehr, R. A.: Recent extension of venereal disease control work through the provisions of the social security act, J. Soc. Hyg., 23:5, 1937.

The Assistant Surgeon General, in his conclusion, emphatically stated that certain measures are of extreme importance in the control of syphilis. Among these measures he suggested a full time venereal control officer in the State Department of Health; a liberal policy as to the free distribution of syphilitic drugs; the adoption of reasonable standards of efficiency by state health departments before giving formal recognition to the clinics for the treatment of venereal diseases, and a much more liberal apportionment of funds for expenditures in the control of these diseases. These measures have to do largely with the Public Health authorities, but the cooperation of the physician could be of material assistance in the fight against this great plague were he to make general use of the dark field examination in the diagnosis of early syphilis, were he to report the cases of syphilis that he treats and were he to develop adequate facilities for diagnosis and treatment of this condition, according to the conclusions just mentioned.

The State of Louisiana and its efficient State Department of Health is working hand in hand with the U. S. Government in endeavoring to control syphilis. An enlightened policy has been followed by those in charge of this campaign in this state. If the medical profession as a whole will help the State Board of Health undoubtedly much would be accomplished in Louisiana, of course not enough to eradicate syphilis, that would be too much to hope for, but at least to reduce its incidence to a minimum and what is by far more important, let the individual physician treat the patient early, thoroughly and fully, thus doing away with the harmful and deleterious after effects of this scourge.

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## EXPERIMENTAL MENSTRUATION

Following double ovariectomy the menses occur in a few days and then totally disappear and at the same time the uterus undergoes atrophy. In the ovariectomized monkey injections of ovarian follicular hormone (theelin, estrin) brings about in from six to ten days a change in the uterus which is succeeded by menstruation. It has been shown that this experimental menstruation can be produced in the thyroidectomized animal with about the same sized dosage of theelin as in that animal when the thyroid is present. The conclusion is obvious, that the thyroid plays no part in menstruation.

There has been a very general acceptance of the idea that the adrenal gland may play some part in bringing about the onset of menstruation. This contention would seem to be further substantiated by the work of Markee[1] who found that the act of menstruation was preceded by vaso-constriction of the endometrial vessels which began some hours before menstrual flow and lasted through the first day. To determine the effect, or non-effect, on menstruation, of the adrenal medulla, Allen et al[2] removed the gland from animals and maintained life by giving them cortical extract as prepared by Swingle. Subsequently the signs of cortical insufficiency were allowed to develop and during this period the monkeys were injected with theelin. There occurred a latent period of four days and then the menses made their appearance, to last a further four days. Three experimental menstrual periods were brought about after the removal in toto of the adrenal medulla. Menses were to all intents and purposes conparable to those that occur in the animal with intact suprarenals and the authors conclude "that the adrenal medulla is not essential to experimental menstrual periods induced by theelin."

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# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

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GRADUATE SCHOOL
LOUISIANA STATE UNIVERSITY
MEDICAL CENTER
NEW ORLEANS

The scientific meeting of April, 1937, was called by Doctor James T. Nix, Director of the Graduate School, who presented the following paper:

## HODGKIN'S DISEASE

Although Hodgkin's disease properly belongs in the field of the internist, the condition must always be considered by the surgeon in the differential diagnosis of cases of adenopathy. Recently we have had an unusual number of cases of this type reporting at the Tumor Clinic at Charity Hospital and we propose, for this reason, to discuss with you some of its important features as gleaned from authoritative contributions to the literature and as manifested in some of our cases.

The nature and etiology of the disease first described by Hodgkin in 1832 have long been the subject of debate, and despite exhaustive research no one is able to say definitely whether it belongs in the category of neoplastic or in that of infectious diseases. The principal reason militating against a clear understanding of its nature is the protean character of the malady.

Sternberg, in 1899, suggested that the disease was a form of tuberculosis. Ewing states that "Tuberculosis follows Hodgkin's disease like a shadow"; "Tuberculous stigmata, tuberculous family history, or tuberculous lesions in the body are the rule." Acid-fast bacilli or Much's granules are frequently found in the nodes, and occasionally animal inoculation is positive. Acute miliary tuberculosis often terminates the disease. Because ordinary inoculations were unsuccessful in such a large number of cases, L'Esperance postulated that Hodgkin's was due to infection by the avian tubercle bacillus, which investigators had ignored. In 1931 she was able to report the typical Sternberg-Reed histology in nodes of guinea pigs inoculated with avian bacilli, and other findings strongly supporting her contention, but independent investigation has controverted this view (Med. Annual). Yet Steiner, using the Seibert tuberculin protein, finds in Hodgkin's disease a marked absence of sensitization to both avian and human tuberculin and explains this as indicating either that in Hodgkin's there occurs a desensitization to tuberculin or that the disease usually appears in persons in whom a normal reaction to tuberculin does not develop. He suggests that this finding may indicate some obscure relation between the two diseases. Many other organisms have been incriminated but evidence thus far is inconclusive. Paltauf supposes that Hodgkin's is due to some virus which enters through the upper air passages.

Held and Goldbloom believe that the manifestations of Hodgkin's in the reticulo-endothelial system are secondary to foci in the organs that disappear because of local immunity. They mention that Wessler has already pointed out that the primary infection in Hodgkin's disease is very possibly in peribronchial tissue, and that Bunting and Yates hold the tonsils and teeth as the original foci in many cases. In their opinion spirochetes, though not causally related to the disease, are frequent secondary invaders. This explains why certain patients are benefited by arsenical preparations. They add that were Hodgkin's disease primary hematopoietic blastoma then every gland affected would present the same changes. The findings actually correspond to a non-specific infectious inflammatory process.

A conception of Hodgkin's disease based upon current physiologic studies of lymphoid tissue is presented by E. Steinfield. The disease is considered a neoplastic one involving the reticular cells and syncitium of the lymph nodes. It has been shown that these structures are multipotential in character, capable of transformation into the complex histologic picture of Hodgkin's disease. The stimulus to such metaplasia may be bacterial, toxic or chemical, which under ordinary circumstances sets up only a temporary reactive change. In certain individuals it is possible that these reactions set up a progressive irremediable hyperplasia. Respiratory infections seem to precede the onset of Hodgkin's disease of the mediastinal or cervical nodes. Occasionally abdominal types follow a history of so-called intestinal influenza. Tuberculosis is considered important in so far as it is an ubiquitous agent capable of similar reactions. The tubercle bacillus A-3 phosphatid fraction has been demonstrated to be capable of inducing massive reactions of epithelioid cells and epithelioid giant cells. Other fractions such as the purified wax and glycerides stimulate general connective tissue potentialities for fibroblasts, clasmatocytes, and plasma cells. After the involvement of the original nodes the process spreads to other areas possibly by some mechanism or principle such as Murphy's "transmissible mutagen." Various types of Hodgkin's disease, such as reticular cell sarcoma and others, may simply represent greater activity of the process or of the preponderance of certain cells above others, and are conditioned by the age and resistance of the patient, and by the continued presence or absence of the inciting agent (Rev. Med. Prog., 1934).

Whatever its cause, Hodgkin's disease resembles the true malignant neoplasms so closely in its clinical and gross pathologic manifestations that the two can not be separated.

The relationship with tumors of the lymph nodes is so intimate and so many transitional types have been described that the disease is generally considered with the malignancies of these organs.

Hodgkin's lymphogranulomatosis is defined as a chronic affection characterized by progressive painless enlargement of the nodes, marked secondary anemia, profound cachexia and an invariably fatal termination. The nodes affected show characteristic gross and microscopic features. The glands are oval or round, and discrete. Their consistency is soft at first but later they become firm and lobulated from fibrosis and degenerative changes. Only exceptionally is the capsule ruptured. Radiation and secondary infection may produce matting. The spleen is enlarged in approximately 60 per cent of the cases (Held and Goldbloom) and is regular and firm. The liver is involved in 50 per cent of the cases; the kidneys less often. The bones and the lungs are affected relatively frequently but practically any and all organs in the body may be invaded. The lymph nodes show at first a pronounced lymphocytic hyperplasia; later, the normal architecture of the nodes is lost, the lymphocytes are decreased, endothelial cells and fibroblasts proliferate, and there is infiltration by eosinophilic leukocytes. Very characteristic are the giant cells first described by Dorothy Reed; these are large, irregular, with a pale cytoplasm and with four to ten nuclei in which the nucleoli are very prominent. Many variations from this morphology have been described and at times a diagnosis is difficult even from biopsy material. Again, in a certain proporton of cases the granuloma develops into a true sarcomatous process.

According to most authorities, lymphogranulomatosis is twice as frequent in the male as in the female, and usually occurs between the ages of fifteen and forty. Yet, infants may be afflicted with the condition, and advanced age is not immune. Sailer reports 27 cases in persons whose age ranged between forty and seventy-seven years, a group which constituted 35 per cent of his series. Apparently, the malady is not familial, incidence among close relatives being exceptional. Held and Goldbloom point out that, as in most chronic diseases, the constitutional make-up of the individual plays a role. Most patients are said to present the external appearance of status lymphaticus; the facies is that o fone with adenoids, and the skin is silky, with a scanty distribution of hair. This is a very apt description of one of our cases, H. O., a white girl, fifteen years old, who has had the disease for four years. In our small group of cases females are in the majority, the average age is forty years, and with one exception the cervical nodes showed the greatest involvement. Kreuger and Meyer, however, in a recent analysis of 60 cases, confirmed the facts stated above. They found that signs referable to the respiratory system and the finding of mediastinal lymphadenopathy were surprisingly common. Hypotension, fever at some time in the disease, tachycardia and an increase in the basal metabolic rate were frequently noted.

Although usually the enlargement of superficial nodes may give a clue to the diagnosis, many cases with lymphadenopathy of the body cavities or with active lesions in bones, lungs and other structures, present exceedingly puzzling clinical pictures. One of our cases illustrates this well:

J. V., colored male laborer, 45 years old, a native of Louisiana, was seen at the Tumor Clinic, June 7, 1934, complaining of general weakness and pain in the chest. He had been ill for six months, had lost fifty pounds of weight, and had moderate cough and expectoration without hemoptysis; fever daily in the afternoons; fatigue and dyspnea on slight exertion; pain anteriorly in the chest, moderate, inconstant; swelling of the ankles for several weeks. The man had had measles, mumps, whooping cough in childhood; pneumonia ten years previously; influenza in 1918; no operations. Significant findings in the physical examination were: dental caries, gingivitis, diseased tonsils, palpable lymph nodes in the neck, posteriorly, and in the supraclavular areas, the nodes being small, firm, movable. Aside from the emaciation the thorax showed no pathologic signs. The abdomen was distended but had no signs of ascites. The legs showed edema. The Wassermann reaction was strongly positive. The sputum had no acid-fast organisms. Roentgenogram of the chest showed a marked increase in the lower portion of the right peri-hilar markings strongly suggestive of bronchiogenic carcinoma. A few days later this shadow became more extensive, fever became high, and the patient died June 16, 1934. Autopsy disclosed hemorrhagic fluid in the peritoneal cavity with marked enlargement of the lymph nodes in the perigastric region. The mediastinal lymph nodes were slightly enlarged, soft, and hemorrhagic. The liver was enlarged with miliary hemorrhagic nodules. The spleen was small, with a thick fibrous capsule, and had two whitish nodules in the pulp. The lymph nodes, the liver and the spleen showed the Hodgkin's histology with necrosis.

The clinical varieties of the disease are so numerous that their description here would be too lengthy. In arriving at a diagnosis biopsy is almost indispensable. The blood picture, however, may have diagnostic value, although controversy still rages about this point. The most enlightened view on this subject seems to be that of Wiseman, who says: "While there is no blood absolutely pathognomonic of Hodgkin's disease, there are nevertheless in the vast majority of cases quite characteristic changes in the blood that accompany the disease . . . The most constant finding is a lymphopenia with a monocytosis giving a high monocyte-leukocyte index . . . The total white blood cells are usually within plus or minus 10 per cent of normal limits. There is a distinct tendency to a neutrophilia, with an absolute increase in eosinophiles. A secondary anemia, chiefly of the hemoglobin type, is an almost constant feature." This is in accordance with the teaching of Bunting and with the recent observations of Kreuger and Meyer and of Roth and Watkins. Two other methods of diagnosis have been described. Twort, according to Held and Goldbloom, has suggested the subcutaneous injection of a suspension of excised gland into a guinea pig. This in positive reactions should produce a sterile local inflammation in a few days. Adenopathies of other types do not yield this reaction. Gordon discovered in 1931 that an encephalitis develops in rabbits when a filtered broth suspension of lymphogranulomatous tissue is injected into the brain. This reaction has been confirmed by other investigators and it is hoped that further experience and refinement of the method may make it a valuable diagnostic aid.

All modern workers are quite agreed that Hodgkin's lymphogranuloma is incurable. Its duration is from six months to fifteen years, the average being three years. With intra-abdominal involvement the process is rapid. It has been claimed that involment of the submaxillary, axillary, or inguinal nodes runs a briefer course than in cases in whom the post-auricular or supraclavicular glands are affected. Remissions without treatment have been observed and for this reason many doubt that our present therapeutic methods acually prolong life. No one ever doubts, on the other hand, that the patient is immeasurably relieved. Furthermore, L. F. Craver in an analysis of 310 cases, 125 of which were proved by biopsy, discovered that 10 per cent showed survival of five years or over following radiation. Favorable features were localization of the disease in one area, when treatment was thorough and instituted early; absence of leukocytosis or leukopenia; and gain in weight after radiation. Leucutia reviewed 2,425 cases of Hodgkin's disease, leukemia and lymphosarcoma subjected to irradiation, of which 129 were observed personally and the balance collected from the literature. He concludes that in Hodgkin's disease a five years' survival is obtained in 15 to 33 per cent of the cases, but the disease is not eradicated and periodical radiation is required. Eight per cent or less survive ten years. The average expectation of life is increased at least two years. Symptomatic improvement is always pronounced. More recently Craver has studied a group of 125 patients treated by radiation at the Memorial Hospital, in whom 12 per cent survived for an average of 7.15 years (all over five years); of this group one-fourth had no evidence of the disease. He believes that these figures can be improved by bettering the patients' living conditions, approaching a regime as for tuberculosis. The various adjuvants, such as heliotherapy, arsenic, iron, liver, transfusions, are important. "As for the results by irradiation alone, early diagnosis, except in the naturally acute forms of the disease, with early judicious treatment, not necessarily heavy irradiation, will improve our figures."

The lesions in Hodgkin's disease are exceptionally radiosensitive, and enlarged nodes recede almost magically under treatment. Relief of pressure symptoms is striking. Desjardins recommends radiation of the retroperitoneal nodes for the relief of pruritus. He advocates radiation of all the main lymphoid regions,—neck, axillae, groins, mediastinal and retroperitoneal spaces. He believes radiation at 135 or 140 kilovolts with four to six millimeters aluminum filtration, is preferable to using shorter wave lengths, because less damage is produced to the blood, the general effect of radiation is milder, node regression is satisfactory, and repeated series are better tolerated. The treatment must be given slowly to avoid reactions, and courses can be repeated every four weeks at first, with longer intervals subsequently, depending on the clinical manifestations. Good judgment and experience are required in directing the radiation. The production of leukopenia must be avoided; the treatment must never be crowded. Late in the disease response to radiation is poor, probably because the recuperative powers of the patient are exhausted. Desjardins states that parenchymatous infiltration of the liver, febrile symptoms and toxic cutaneous manifestations do not respond well to radiation. But on the whole, radiation judiciously employed is remarkably beneficial in the disease.

New methods and improvements are being constantly sought. At the Memorial Hospital of New York, Craver has treated lymphogranuloma and other lymphoblastomas by Heublein's low intensity continuous roentgen radiation extending over a period of three weeks. "Experience with this method in 134 cases over a period of two years indicates that it is a valuable addition to the treatment of several radiosensitive tumor processes."

## SUMMARY AND CONCLUSION

In an informal discussion on Hodgkin's disease, it is brought out that its clinical and pathologic features partake of the characteristics of both a neoplastic and an infectious process; that all efforts to bring light on its etiology and on its very nature have thus far proved fruitless. In describing the clinical manifestations of the disease, a case from the Tumor Clinic of Charity Hospital is reported. Some biological diagnostic tests appear promising but further experience with them is needed. Despite the fatal prognosis, careful management of cases and judicious employment of roentgen therapy gives a good proportion of five year survivals with the patients able to lead a comfortable life.

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## MERCY HOSPITAL

The meeting was called to order by the chairman, Dr. John Dicks, at 8:15 p. m. and the mortality investigation was taken up.

The first case to come up for consideration was that of a white male, 37 years old, admitted to the hospital on March 2, 1937, in a very toxic and semi-comatose state. His chief complaint was pain in the epigastrium with chills and fever. The patient was too ill to give a history. His history as obtained from relatives was that about January 15, 1937, he developed a rather acute colicky pain in the epigastrium. There was no associated nausea nor vomiting. Several days later he developed jaundice which lasted but a few days, but the epigastric pain persisted. Later he developed chills and fever, the chills occurring about three times daily and quite severe.

On admission his temperature was 100.6°, pulse 88 per minute, respiration 24 per minute. He was placed immediately on strychnine sulphate, sodium citrate, quinine sulphate and caffeine sodium benzoate.

The urine showed a heavy trace of albumin, indican and much bile. Microscopic examination revealed many hyaline, fine and coarse granular casts with few waxy casts; pus, mucous and blood present. The blood count showed 3,100,000 red blood cells with 65 per cent hemoglobin, 30,000 white blood cells with 93-98 per cent polys on different occasions.

On February 7 sodium citrate was discontinued and urotropin started. The following day quinine was discontinued. On March 9 a blood culture was done and reported negative and agglutination for undulant fever was also negative. During all this time the patient was running a very septic fever ranging between 97.6 to 104 degrees. He later became very distended and a heat tent was applied to abdomen and turpertine stoupes used.

On March 12 a G. I. series was done and colonic stasis reported. Stool examination at this time was negative. Decompression was done for the distention and glucose by vein given. Condition became progressively worse, temperature remained septic, chills several times daily, finally became jaundiced and diarrhea developed. Blood Wasserman and chemistry had remained negative.

On March 29 he had several bowel movements which contained bright red blood. He then went into a state of shock, the pulse rose to 170 per minute and later became imperceptible. He was given calcium gluconate and coagulase, respiration became labored and he expired at 4:15 a. m. on March 31, 1937.

Diagnosis: Ulcerative colitis (amebic) with extension to mesentery with suppuration, multiple abscesses of liver and omentum; empyema of gallbladder; toxic myocarditis, splenitis, and nephritis; arteriosclerosis and aortitis, and localized suppurative peritonitis.

The case was discussed by Drs. E. L. Leckert and Geo. Hauser who stressed the fact that there was no diarrhea early and that the case was inoperable when first seen.

The second case was that of a white male, aged 56 years, who came into the hospital with a history of having been sick about four days prior to admission but had not remained in bed. Only when breathing became very labored and rattling noises were heard from bronchi was he brought in. Despite care given, he expired shortly after admission and the coroner notified.

Diagnosis: Lobar pneumonia of upper and middle lobes of right lung.

The third case was one of luetic meningitis, who had been under treatment for spinal lues for some time previously, but who suddenly developed symptoms of basilar meningitis, brought into hospital and died shortly after. There was no discussion of this case.

The fourth case was that of a white male, aged 70 years, who had been in the hospital on numerous occasions before. H ewas readmitted on February 24 with complaint of being unable to void. Examination revealed motor paralysis of both legs, absent patellar reflexes and sensations normal. The urinary bladder was greatly distended and extended to the umbilicus. All lymph glands in inguinal region and along the aorta were hard and matted together. The prostate was large, of stony hardness and irregular.

The patient was catheterized at intervals and the bladder emptied very slowly. He became progressively weaker, temperature ranging from 99.6 to 102.2 degrees. He became weaker, the pulse became irregular and expired March 1, 1937.

Diagnosis: Carcinoma of prostate with metastatic carcinoma of pelvic and retro-peritoneal lymph nodes.

Following the mortality investigation, Dr. George Mayer presented several motion pictures on various interesting phases of obstetrics.

In the handling of abrupto placenta cases he showed pictures of:

1. Natural (nature) bag.
2. Braxton Hicks.
3. Cesarean section.

In the handling of gangrene of the uterus cases he showed pictures of Porro technic.

Thirdly he showed pictures of face presentation with the position of the child in extension.

The pictures were rather extensively discussed by several members of the staff including Drs. Dicks, P. J. Carter, E. L. Leckert and J. E. Brierre. Several of the above named members disagreed with the speaker in that they preferred cesarean section over the Porro technic. Dr. George Mayer closed the discussion, and a short recess was ordered before the meeting went into Executive Session.

H. Ashton Thomas, M. D., Sec.

## HOTEL DIEU

The regular monthly meeting of the Staff of Hotel Dieu was held in the Nurses' Lecture Room of Hotel Dieu on Monday, March 15, 1937, at 8:00 p. m. The meeting was called to order by the president, Dr. H. E. Bernadas, and with the secretary, Dr. J. A. LaNasa, at the desk.

The Scientific Program consisted of:

1. "Motion Pictures of the Larynx" . . . Dr. Francis E. LeJeune. Discussion by Drs. Fuchs and Burns.
2. "Interpretation of Allergic Reactions by Violet Light" . . . Dr. N. F. Thiberge. Discussion by Dr. J. K. Howles.

A recess of one minute was ordered by the Chairman after which the meeting resolved into Executive Session. The meeting was then adjourned.

## HUTCHINSON MEMORIAL CLINIC

A symposium on malaria was conducted by the Department of Tropical Medicine, Colonel Charles F. Craig presiding.

The following staff members participated.

Dr. J. S. D'Antoni (Department of Tropical Medicine): Plasmodium Ovale;

Dr. E. C. Faust (Department of Tropical Medicine, Division of Parasitology): Certain Factors in the Epidemiology of Malaria in the Southern United States;

Dr. L. A. Golden (Department of Medicine, Division of Psychiatry): The Role of Malaria in General Paresis;

Colonel Charles F. Craig (Department of Tropical Medicine): The Modern Treatment of Malaria.

The symposium will be published in detail in a later issue of this journal.

## ST. JOHN HOSPITAL

The regular monthly meeting of the Staff of the St. John Hospital, Lafayette, Louisiana, was held in the hospital Wednesday, April 7, at 7:00 p. m. As a preliminary to the meeting, the following films were exhibited:

Calles Fracture by Dr. Fremont H. Chandler, Northwestern University Medical School.

The Science and Art of Obstetrics by Dr. Joseph B. DeLee of the Lying In Hospital, Chicago, Illinois.

Following this exhibition, the meeting was called to order by Dr. O. P. Daly and a round table discussion of the problems encountered in obstetrical practice was carried out. This discussion was entered into fully and a number of cases were discussed in detail by those present.

O. P. Daly, M. D.

# TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

## CALENDAR

MAY 19. Board of Directors, Orleans Parish Medical Society, 8 p. m.

MAY 3. Pathologic Conference, Hotel Dieu, 8:15 p. m.

MAY 4. Eye, Ear, Nose and Throat Staff, 8 p. m.

MAY 5. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

MAY 5. Hutchinson Memorial Clinic Staff, 8 p. m.

MAY 5. Mercy Hospital Staff, 8 p. m.

MAY 10. ORLEANS PARISH MEDICAL SOCIETY, 8 p. m.

MAY 12. Touro Infirmary Staff, 8 p. m.

MAY 14. French Hospital Staff, 8 p. m.

MAY 17. Hotel Dieu Staff, 8 p. m.

MAY 18. Charity Hospital Medical Staff, 8 p. m.

MAY 19. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

MAY 19. Charity Hospital Surgical Staff, 8 p. m.

MAY 20. Eye, Ear, Nose and Throat Club, 8 p. m.

MAY 21. I. C. R. R. Hospital Staff, 12 Noon.

MAY 24. ORLEANS PARISH MEDICAL SOCIETY, 8 p. m.

MAY 25. Baptist Hospital Staff, 8 p. m.

MAY 26. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

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During the month of April the Society held one regular meeting—a joint Scientific and First Quarterly Executive Meeting. The regular meeting scheduled for April 26 was dispensed with because of confliction with the meeting of the Louisiana State Medical Society at Monroe. The following program was presented at the meeting of April 12:

### SYMPOSIUM ON DIABETES

Dr. Isaac I. Lemann—Experiences with protamine insulin.

Dr. Urban Maes—The principles of urgent and elective surgery on diabetic patients.

Dr. Charles James Bloom—Diabetes in childhood.

Dr. Emmerich von Haam—Demonstration of pathologic specimens.

Reports of the Officers and Special and Standing Committees for the first quarter were read.

Final favorable action was taken on Amendment to Article I, Section 3 of the By-Laws as follows:

ASSOCIATE MEMBERS: Eligibility — Every white dentist residing in Orleans Parish who is a member in good standing of and recommended by the First and Second District Dental Society of Louisiana; also, Medical Officers of the Army, the Navy and the Public Health Service of the United States; also white teachers not physicians, or those men on Fellowships in recognized medical schools or hospitals in the Parish of Orleans (restricted from any private practice).

Amended to include, and white physicians teaching on full time basis in medical schools whose salaries are $1200 a year or less and physicians in their first year of private practice.

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Dr. Lucien A. LeDoux was appointed by Dr. James T. Nix, President of the Society, as General Chairman of the Committee of Arrangements for the meeting of the Southern Medical Association to be held in New Orleans, November 30, through December 3, 1937. Committee appointments are now being made and work has been started for the entertainment of the members and guests.

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The Board of Directors has gone on record as disapproving the insertion of names of the members of the Society in the classified professional and business directory which appears in the New Orleans Item. Members of the Society will, therefore, be governed accordingly, and it is suggested that if anyone has already arranged for the insertion of his name in this Directory that he request that it be withdrawn.

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## THE FOLLOWING MEMBERS WERE ELECTED TO MEMBERSHIP

### ACTIVE MEMBERSHIP

Drs. Eva C. Eichold, George M. Decherd, Jr., Alvin C. Hoffpauir, Alberto Prieto and Hume A. Thomason.

### ASSOCIATE MEMBERSHIP

Dr. Jos. E. Blum, Jr.

### INTERNE MEMBERSHIP

Dr. Arthur N. Lewis, Jr.

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Dr. H. L. Kearney was elected President of the Louisiana Academy of Science, which held its annual convention recently in Hammond, Louisiana, in connection with the annual meetings of the Louisiana-Mississippi Section of the Mathematical Association of America and the Junior Academy of Science of Louisiana. Dr. L. J. Menville was appointed Chairman of the Section on Applied Science of the Academy.

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Dr. J. M. Batchelor, Superintendent of the New Orleans Board of Health, delivered an illustrated lecture on the pathology and treatment of gonorrhea and syphilis, at Loyola University. The lecture was sponsored by the Loyola Alpha chapter of Theta Beta, national honorary biology society, and was given in connection with the health drive of the American Medical Association.

News has been received in New Orleans of the appointment of Dr. George S. Bel, professor and director of the Department of Medicine at the Louisiana State University Medical Center and the Director of the Charity Hospital of Louisiana at New Orleans, as an Advisor of the American Board of Internal Medicine.

To this Board is entrusted the examination and certification of physicians who wish to specialize in Internal Medicine. Recently, the American Medical Association has approved the creation of numerous such boards: in Gynecology and Obstetrics, in Neurology and Psychiatry. At periodic times, examinations will be held in various parts of the country and those qualified will be awarded a certificate attesting to their proficiency to practice Internal Medicine.

### TREASURER'S REPORT

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| ACTUAL BOOK BALANCE: 2/27/37 | $3,305.50 |
| March credits | 1,555.99 |
| TOTAL CREDITS | $4,861.49 |
| March expenditures | 1,085.33 |
| ACTUAL BOOK BALANCE: 3/31/37 | $3,776.16 |

The Library has loaned to doctors, 810 books and journals during March, or more than 1½ to each member of the Society. In addition, 894 items have been loaned to students for overnight use, making a total of 1,704. These figures do not include the great use of books and journals within the Reading Rooms.

During March, 61 volumes have been added to the Library. Of these, 15 were received by gift, 3 by purchase, 29 by binding and 14 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is given below.

On request of physicians, members of the staff have collected material on the following subjects during March:

Alcoholism
Anesthesia
Fibroids
Aneurysm of the aorta
Surgical treatment of tuberculosis
Fracture of the upper mandible
Liver dysfunction

### NEW BOOKS

Tow, Abraham—Diseases of the Newborn. 1937.

American Pediatric Society—Transactions. 1936.

U. S. Census Bureau—Mortality Statistics. 1934.

U. S. Census Bureau—Births, Stillbirths and Mortality Statistics. 1936.

American Laryngological, Rhinological and Otological Society—Transactions. 1936.

Bohler, Lorenz—Treatment of Fractures. 1936.

Majors, R. H.—Physical Diagnosis. 1937.

Lautman, M. F.—Arthritis and Rheumatic Disease. 1936.

Emerson, C. P.—Textbook of Medicine. 1936.

Krusen, F. H.—Light Therapy. 1937.

Griffith, J. P. C.—Diseases of Infants and Children. 1937.

Cabot, R. C.—Art of Ministering to the Sick. 1936.

Thoma, K. T.—Oral Diagnosis and Treatment Planning. 1936.

Nystrom, Gunnar—Lectures on Embolism and Other Surgical Subjects. 1936.

Malinowsky, M. C.—Carcinoma of the Female Genital Organs. 1936.

Hamilton, Gordon—Social Case Recording. 1936.

Lewis, N. D. C.—Research in Dementia Praecox. 1936.

Walker, W. F.—Recording Local Health Work. 1935.

Walker, Sir, J. G. T.—Surgical Diseases and Injuries of the Genito-Urinary Organs. 1936.

American Neurological Association—Eugenical Sterilization. 1936.

Sante, L. R.—The Chest Roentgenologically Considered. 1936.

Gilbert C. Anderson, M. D.,
Secretary.

## LOUISIANA STATE MEDICAL SOCIETY NEWS

### NEW STATE OFFICERS

At the meeting in Monroe, the following officers were elected:

President-Elect: Dr. Joseph A. O'Hara.
First Vice-President: Dr. Walter Moss.
Second Vice-President: Dr. A. W. Martin.
Third Vice-President: Dr. L. J. Bienvenu.
Councilor Third District: Dr. C. C. DeGravelles.
Councilor Sixth District: Dr. Rhett McMahon.
Councilor Seventh District: Dr. Claude A. Martin.
Councilor Eighth District: Dr. W. F. Couvillion.
Delegate to A. M. A.: Dr. J. Q. Graves.
Alternate Delegate to A. M. A.: Dr. J. B. Vaughan.

On account of the lack of time and the necessity of going to press immediately, it is impossible to comment on these new officers or to publish a full list of the committees. This will be done next month. New Orleans has been selected as the next place of meeting.

### TANGIPAHOA PARISH MEDICAL SOCIETY OFFICERS 1937

President: Dr. A. L. Lewis, Amite.
Vice-Pres: Dr. R. A. Corbin, Hammond.
Sec.-Treas: Dr. L. L. Davidge, Amite.
Delegate: Dr. W. T. Newman, Independence.

### NATCHITOCHES PARISH MEDICAL SOCIETY OFFICERS 1937

President: Dr. R. E. Corkern, Natchitoches.
Vice-Pres: Dr. W. H. Pierson, Natchitoches.
Sec.-Treas: Dr. W. W. Knipmeyer, Natchitoches.
Delegate: Dr. R. E. Corkern, Natchitoches.
Alternate: Dr. W. W. Knipmeyer, Natchitoches.

### SIXTH DISTRICT MEDICAL SOCIETY OFFICERS 1937

President: Dr. A. A. Landry, Plaquemine.
Sec.-Treas: Dr. J. L. Beven, Baton Rouge.
Delegate: Dr. C. A. Lorio, Baton Rouge.

### ST. TAMMANY PARISH MEDICAL SOCIETY

The regular meeting of the St. Tammany Parish Medical Society was held at the St. Tammany Hotel in Mandeville, April 9, and was presided over by the president, Dr. W. L. Stevenson.

The scientific program consisted of several papers, two of which were presented by guest speakers from New Orleans. Dr. H. W. E. Walther spoke on the conservative management of certain distressing urological ailments in aged patients. Dr. R. M. Willoughby, who is associated with Dr. Walther, presided at the motion picture machine. Dr. Oscar Bethea presented a paper on heart function tests, or a study of the history in the diagnosis of heart disease. Dr. W. L. Stevenson, of Covington, spoke on asphaltum in athlete's foot.

Dr. Thomas B. Sellers, of New Orleans, made a very interesting talk on sanitation and general health conditions, bringing out the point that St. Tammany Parish should take steps to inform the outside world, especially New Orleans, of its many advantages in this respect.

The next meeting will be held in Covington, September 10, 1937.

H. D. Bulloch, M. D., Sec.

### TRI-PARISH MEDICAL SOCIETY

A regular meeting of the Tri-Parish Medical Society was held at Newellton, Louisiana, on April 6, 1937, in the newly dedicated home of the Newellton Post of the American Legion. The supper was served by the Auxiliary.

Those present were: Drs. J. P. Davis, president; B. C. Abernathy, B. J. Aymond, William H. Hamley of East Carroll. Drs. W. McG. Dollerhide, E. D. Butler, Fritz LaCour of West Carroll. Drs. W. K. Evans, J. F. Davis, Jos. Whitaker, T. P. Sparks, H. C. Denson of Tensas and Drs. G. W. Gaines, H. C. Sevier, H. S. Provine of Madison. The guest speakers present were Drs. L. S. Gaudet, J. S. Ullmann and E. E. Benoist of Natchez, Miss. Mr. E. R. McDonald, representing the City of Newellton and the American Legion Local Post, was also a guest.

Minutes of last meeting were read and approved, and the secretary read the correspondence on file. Dr. E. E. Benoist, of Natchez, read a paper on liver abscess, which was discussed by Drs. Sparks, Denson, Gaudet and Benoist. Dr. L. S. Gaudet, of Natchez, presented a paper on simple glaucoma and prevention of blindness. The paper was discussed by Drs. Gaines, Denson, Benoist, Whitaker and Gaudet.

On invitation from the West Carroll members, the next meeting will be held on May 4 at Oak Grove.

William H. Hamley, M. D., Sec.

### THE VISIT OF THE FRENCH MISSION

On March 30, 1937, at the morning session of the La Salle Commemorative celebration held in New Orleans at the Presbytere (La. State Museum) Dr. R. Matas presided by invitation of the French Mission and opened the proceedings by an address in French on the influence of French medicine in the material progress and the intellectual development of Louisiana during the colonial and post-colonial periods. Among other physicians who took part in the celebration were Dr. Gomila and Dr. Graffagnino, who assisted in the reception of the mission during its visit to the French Hospital; Dr. Nix, president of the O. P. M. S., who attended Mass at the Cathedral with other Knights of St. Gregory; Drs. Granger and Cassegrain, among French speaking physicians of Louisiana, who helped entertain the distinguished guests.

### APPROACHING MEETINGS

The annual meeting of the American Medical Association will be held in Atlantic City, June 7-11, 1937.

The Thirteenth Scientific Sessions of the American Heart Association will be held in Atlantic City, June 7-8, 1937. On Monday the seventh, the program of the Section for the Study of the Peripheral Circulation will be given. The general heart program will be given on Tuesday, June eighth.

The American Association on Mental Deficiency will hold its sixty-first annual convention in Atlantic City, May 5-8, 1937.

The annual meeting of the American Association for the Study of Goiter will be held in Detroit, Michigan, June 14-16, 1937, with headquarters at the Book-Cadillac Hotel. There will appear on the program of this meeting such students of diseases of the thyroid as Drs. Andre Crotti, Jacob Lerman, Arnold S. Jackson, George Crile, W. M. Boothby and W. A. Plummer, J. B. Collip and Dennis O'Donovan, C. W. Mayo and Allen Graham.

## NEWS ITEMS

Dr. A. L. Levin has been elected as a representative of the National Society for the Advancement of Gastro-enterology to the International Congress of Gastro-enterology to be held in Paris, France in September, 1937.

Doctor Daniel J. Devlin has been appointed and commissioned as Assistant Surgeon in the Reserve Corps for active duty at the U. S. Marine Hospital, New Orleans, Louisiana.

Assistant Surgeon Theodore L. Perrin has been relieved from duty at the U. S. Quarantine Station, New Orleans, and ordered to Russellville, Ky.

Dr. John Scarf of New York City, instructor of Neurology at Columbia, adjunct Neurologist to Mt. Sinai, chief visiting Neurologist to the Neurological Hospital and an ex-resident to Montefiore, and at present, a member of staff, was a guest of Dr. L. Roland Young, of Covington, from the 21 through to the 26 of March. He was shown the medical centers of New Orleans and New Fenwick Sanitarium of Covington, La., before leaving. He was much impressed with what he saw and, especially, with the recent development in Louisiana.

There is an opening in Meridian, Mississippi, for a man interested in internal medicine. Further information may be obtained in the office of the Journal.

The Annual Postgraduate Course and Clinical Conference of the St. Louis Clinics will be held in that city from May 24 to May 29, 1937.

The International Medical Days of Paris, under the sponsorship of the French Medical Review, will give a series of scientific papers on the regulation of hormones in biology and in the clinic and their therapeutic use. The session will be held in Paris, June 26-30, 1937.

## WARNING

The Texas State Medical Journal has published the following note concerning an apparent fraudulent misrepresentation: "Information is to the effect that physicians and others are being victimized by a man claiming to be an agent of the National Equity Life Insurance Company of Little Rock, Arkansas. It appears that attractive insurance contracts are offered, premiums collected, and the agent disappears without communicating with the company in question. The company advises that it is not authorized to transact business in Texas and has no agents in this state."

## INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the state, which contain the following summarized information: For the eleventh week of the year, ending March 20, influenza led all other reported diseases with 88 cases, closely followed by pneumonia with 80 cases, as compared with 366 and 73 cases, respectively, in the tenth week. Other diseases reported in double figures, in order of frequency, were 36 cases of pulmonary tuberculosis, 27 of syphilis, 21 of measles, 20 of cerebrospinal meningitis, 19 of whooping cough, 18 of diphtheria, 17 of malaria, 16 of cancer and 13 scarlet fever. There was apparently an epidemic of cerebrospinal meningitis in Lafourche Parish, where 16 cases were reported for the week, a total number of cases almost ten times the five-year average. It is interesting to note that there were 3 cases of tularemia reported in this week. Catahoula Parish listed 4 cases of smallpox; Concordia Parish listed one case of poliomyelitis. For the next week, the twelfth of the year and ending March 27, influenza jumped up to 132 cases; pneumonia fell to 61 reported cases. These diseases were followed by 47 cases of syphilis, 19 each of pulmonary tuberculosis and diphtheria, 15 of cancer, 13 of gonorrhea and 10 of whooping cough. No cases of epidemic cerebrospinal meningitis were reported this week, and five cases of smallpox were listed. For the thirteenth week of the year, ending April 3, measles led with 164 cases, followed by 70 of pneumonia, 68 of influenza, 53 of syphilis, 43 of chickenpox, 33 of gonorrhea, 22 of pulmonary tuberculosis, 16 of diphtheria, 14 of cancer and 13 of scarlet fever. One case of smallpox was reported this week, and one case of poliomyelitis. For the next week, ending April 10, pneumonia led with 77 cases, followed by 71 cases of syphilis. There were only 54 cases of influenza listed in the fourteenth week of the year, as contrasted with 606 listed last year. Other diseases that occurred in double figures included 56 cases of gonorrhea, 26 of pulmonary tuberculosis, 17 of cancer, 14 of scarlet fever, 13 of whooping cough and 10 of typhoid fever. The figures for pulmonary tuberculosis remained remarkably consistent throughout the weeks, comparing them with the five-year average. Of the unusual diseases, smallpox was reported in the northern part of the state. Madison Parish reported 4 cases of typhoid fever; Orleans one of undulant fever. One case of leprosy was reported by the Orleans Parish Board of Health. Two cases of tularemia were included in the morbidity report for this week.

## HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census, reports that for the week ending March 13, there were 174 deaths in the City of New Orleans, of which 119 were white and 55 negro. There were 22 deaths in children under one year of age. A slight increase occurred in the total number of deaths during the week of March 20, as a result of 178 people dying in the city, of whom 115 were white and 63 negro. There were 20 deaths in infants under one year of age. The number of deaths remained quite consistently about the same figure for the last three weeks, that of the week of March 27 being 170, divided 110 white and 60 negro. For the week ending April 3, there was a drop to 161 deaths in the city; one hundred and two of these occurred in the white and 59 in the negro population. There were 17 deaths in children under one year of age as contrasted with 13 deaths in the previous week.

## AMERICAN BOARD OF OPHTHALMOLOGY

The American Board of Ophthalmology will conduct an examination in Philadelphia, June 7, 1937, and Chicago, October 9, 1937. All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination.

The American Board of Ophthalmology has decided to establish a Preparatory Group of prospective candidates for its certificate, the plan being to assist physicians who wish to study ophthalmology so that they may become acceptable as candidates for examination and certification when they have completed the requirements.

Any graduate or undergraduate of an approved medical school is eligible to make application for membership in this group. Candidates so applying will be notified officially by the Secretary when the Board has accepted their applications. If accepted, data will be sent concerning ethical and educational requirements. Syllabuses and other information will be made available to them.

Information and advice will be available to members in this group through preceptors who are members or associates of the Board. Members of the Preparatory Group must keep a summarized record of their activities, two copies of which will be sent to the Secretary in January of each year and will be incorporated in the final application for examination and certification.

John Green, M. D., Secretary,
3720 Washington Blvd.,
St. Louis, Mo.

## GRADUATE FORTNIGHT OF THE NEW YORK ACADEMY OF MEDICINE

For the Annual Graduate Fortnight of The New York Academy of Medicine a subject of outstanding importance in the practice of medicine and surgery is selected and is presented from as many angles as possible. It offers to the profession a resume of the present knowledge of the subject so that the practitioner may be so informed.

The Tenth Annual Graduate Fortnight will be held November 1 to 12 and will be devoted to a consideration of MEDICAL AND SURGICAL DISORDERS OF THE URINARY TRACT. The subject will include Bright's diseases, arterial hypertension, and infections, tumors, calculi and obstructions of the urinary tract, and will exclude venereal disease, diseases of the genitalia and gynecology.

Twenty important hospitals of the City will present coordinated morning and afternoon clinics and clinical demonstrations. At the evening meetings prominent clinicians of New York and many of the other leading medical centers of this country who are recognized authorities in their special fields will discuss the several aspects of the general subject.

A comprehensive exhibit of books, pathological and research material, diagnosis, treatment and prevention whenever possible, clinical and laboratory diagnostic methods, x-rays, action of drugs and other therapeutic measures. Demonstrations will be held at regular intervals.

A complete program and registration blank may be secured by addressing Dr. Mahlon Ashford, The New York Academy of Medicine, 2 East 103rd Street, New York City.

## RESOLUTION ADOPTED BY THE JOINT COMMITTEE ON HEALTH PROBLEMS IN EDUCATION OF THE NATIONAL EDUCATION ASSOCIATION AND THE AMERICAN MEDICAL ASSOCIATION

Whereas, The eyes and the sight of the school child are of the most vital importance for satisfactory school work, and their preservation for future health and efficiency depends upon their wise conservation during childhood; and

Whereas, The school has a grave responsibility for the conservation of eyesight among school children; and

Whereas, School administrators in many parts of the United States are frequently besieged with demands for admission into their school systems of eye examinations and eye-glass prescriptions by practitioners other than qualified doctors of medicine; and

Whereas, The eye, as an organ of vital necessity, requires careful conservation and deserves treatment only at the hands of trained and competent persons; and

Whereas, Teachers and nurses properly may and often do make rough tests of visual acuity in the classroom, but diagnosis of diseases of the eye and of disturbances of vision requires more extensive examination and often involves treatment other than the mere fitting of glasses; and

Whereas, Even the fitting of glasses often requires the paralysis of accommodation through the use of drugs popularly known as "drops"; now therefore be it

Resolved, That it is the sense of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, in meeting assembled at New Orleans, February 23, 1937, that the safety of the eyes of school children, the adequate diagnosis of disease and the correct fitting of glasses requires examination of children's eyes (beyond rough visual tests performed by teachers or nurses) by a licensed doctor of medicine and, upon his recommendation, by a medical specialist in diseases of the eye, properly known as an oculist or ophthalmologist.

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## WOMAN'S AUXILIARY

### Louisiana State Medical Society

President, Mrs. James Byron Vaughan, Monroe.

President-Elect, Mrs. George D. Feldner, New Orleans.

First Vice-President, Mrs. F. G. Ellis, Shreveport.

Second Vice-President, Mrs. T. H. Watkins, Lake Charles.

Third Vice-President, Mrs. E. B. Middleton, Homer.

Fourth Vice-President, Mrs. R. R. Arceneaux, Welsh.

Recording Secretary, Mrs. C. Grenes Cole, New Orleans.

Corresponding Secretary, Mrs. Joseph P. Brown, Monroe.

Treasurer, Mrs. Courtland P. Gray, Monroe.

Parliamentarian, Mrs. R. T. Lucas, Shreveport.

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### CLAIBORNE PARISH

The Claiborne Parish Auxiliary is happy to say that "Doctor's Day" was celebrated in a most delightful manner. Each doctor was presented with a pink carnation boutonniere by the Auxiliary. On Easter morning, Edgar Guest's "The Doctor" was read from the pulpits of ten different churches in the parish. The local papers all entered into the celebration with very fitting editorials, which source saw gifts from the lay public flowing into the offices of all the medical men. They received bouquets, potted plants, cigars, cigarettes, hams, cakes, canned fruit, preserves, cards, neckties. Many people telephoned their doctors and others extended congratulations in observance of "Doctor's Day."

The technician of the Haynesville Hospital entertained the Haynesville doctors at a dinner in his home that night, and the doctors and their wives were guests of the local theatres in the evening.

Mrs. C. W. Phillips,
Publicity Chairman.

### JEFFERSON DAVIS PARISH

The Woman's Auxiliary to the Jefferson Davis Parish Medical Society met in Jennings for the April meeting at the home of Mrs. Morgan Smith.

Mrs. L. E. Shirley gave an interesting paper on hypnotism. This was followed by a musical program by the hostess' daughter, Miss Harriet Smith, and Professor Clow, director of the parish school bands.

Mrs. Claude A. Martin,
Publicity Chairman.

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### ORLEANS PARISH

The April meeting of the Woman's Auxiliary to the Orleans Parish Medical Society was held as usual at the Orleans Club.

During the business session, the report of the chairman on yearly health examinations was read, and it was very gratifying to find that the importance of such examinations has been greatly impressed on our members.

The report of the Nominating Committee for next year's officers was also read and will be acted upon at the next meeting.

Everyone was still full of enthusiasm for the good time enjoyed by a large number at the "Doctor's Day" party on March 30.

Following the business meeting, Judge Pierre Crabites, a former member of the International Tribunal at Cairo, Egypt, and now on the L. S. U. faculty, gave an interesting review of the life of Florence Nightingale, after which tea and light refreshments were served.

All members feel a deep interest in the coming State Society meeting to be held in Monroe the last of this month, at which time Mrs. George D. Feldner, a local member, will become president of the Louisiana State Auxiliary.

Mrs. Edgar Burns,
Publicity Chairman.

Dear Auxiliary Members:—

With this issue of the Journal my term as the State Publicity Chairman expires. I take this opportunity to thank the publicity chairmen of all the parish auxiliaries for the very splendid cooperation and interest they have rendered and shown this past year. It has certainly made my office a most pleasant and happy one and I trust that each auxiliary member who has read these articles contributed by the auxiliaries each month has benefited greatly by the very inspiring and interesting news contained therein.

I am greatly indebted to the personnel of the New Orleans Medical and Surgical Journal for their kindness and cooperation in giving us so much space in the "Journal", and to them also I want to say "Thank You."

As a parting farewell I would like to leave with you the thought that it is most important that the "Woman's Auxiliary" news be read each month, for it is only through this medium that each parish auxiliary knows what the other is doing. So make it a habit, and one that you will look forward to doing each month.

With all good wishes to all of you and continued success to our column in the "Journal,"

Mrs. George D. Feldner,
Chairman Press and Publicity.

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## BOOK REVIEWS

*The Lung*: By William Snow Miller, M. D., Sc.D. Baltimore, Charles C. Thomas, 1936. pp. 209. Price $7.50.

Dr. Miller, who has devoted his life to the study of lung structure, has condensed his findings and the most important work of others into an integral whole in this monograph.

The book is a small volume, profusely illustrated with photographs of sections, line drawings and colored plates. There is an excellent bibliography, which includes some 222 references.

The work is logically planned and reproduces the various schemes of lung structure in a single publication. The author has adopted a judicial attitude toward controversial points, and naturally comments editorially in accordance with his own beliefs. Of particular interest is the historical sketch at the end of the volume, dealing with the arrangement of air spaces and emphasizing the effect of time and of various methods of study on this problem.

Dr. Miller has undoubtedly written an important work on the lung. The completeness of the monograph, the good judgment of the author in the consideration of various problems, and the readability of the work make it an essential part of the library of any physician who is interested in the lung.

W. H. Gillentine, M. D.

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*The International Medical Annual*: Edited by H. Letheby Tidy, M. A., M. D. (Oxon), F. R. C. P., and A. Rendle Short, M. D.. B. S., F. R. C. S. Baltimore, Wm. Wood and Co., 1937. pp. 554. Price $6.00.

An annual which has gone through its fifty-fourth year must necessarily have fulfilled a need, merely to have survived so long. It makes no pretensions as a substitute for a text book. Quoting from the introduction ". . . a year book must record the proceedings of the previous year like the minutes of a meeting. Minutes contain no implications that the . . . conclusions arrived at are correct, although some discretion is used as to what is inserted. The next meeting may produce evidence for consideration and reverse the previous decisions."

The chief advances in the various fields of medicine, surgery and allied branches are summarized in the first few pages and the rest of the book given over to abstracts of various articles appearing in the literature. While it is obviously impossible to review all of the abstracts presented, a cursory examination indicates that they are well written and edited.

While profusely and beautifully illustrated it suffers from a defect often found in foreign periodicals—i. e., the type used is bad, being much too small for comfortable reading.

In so far as the book had certain objectives it has met them and is to be recommended as a valuable record of the minutes of medical year 1936.

Carlo P. Cabibi, M. D.

*A Textbook of Histology, Arranged Upon an Embryological Basis*: By J. Lewis Bremer, M. D. 5th ed. Philadelphia, Blakiston. pp. 580, illus. Price $6.50.

This new edition of the well-known Lewis and Stohr textbook is a fairly thorough revision. It, however, retains the distinctive form and the approach from an embryological viewpoint which has made it a widely used standard text for several decades. A very conscientious effort has apparently been made to cite the changes in histological teaching due to even very recent work. The book is intended for use chiefly by medical students; therefore one does not find sufficient wealth of detail to make it really valuable as a reference book. Inevitably, this must lead to a slight tendency to dogmatism in regard to many subjects. However, there is the resultant benefit of limited redundancy. The grammatical structure is unusual for a medical textbook; the sentences invariably consist of only one or two short, direct statements. This style, while apparently abrupt, is impressive for the clarity and rapidity with which ideas are presented to the reader. The illustrations are abundant, there being almost one for each page, and many of them are new original drawings or reproductions from research papers. Without exception, the technical quality of reproduction is very high.

The first section of the book is devoted to the use of the microscope and of stains, and to cell structure. Approximately one hundred pages are then concerned with general histology and tissue formation. The balance of the book deals with special histology and organ structure. In this last section one finds a large proportion of the space being given to the embryological formation of the organs described, with seemingly minor attention to the morphological details. This is probably valuable to the elementary student or to one desiring a hasty review of microscopic anatomy. Its desirability is very doubtful for use in medical schools where a separate and important course in embryology is given. This inadequately detailed presentation of the cytology and physiologic applications of histology is partially compensated for by a well selected bibliography of over 500 titles, so that the interested or advanced student, with the aid of a good library, may research for further details in the original publications.

There are very few specific criticisms to be made, as is to be expected in a volume which has been in use for so many years. Much more detailed treatment of the histology and physiologic correlations of the endocrine glands would be desirable. An obvious error is found on page 364 where pituitrin is said to be the hormone from the anterior lobe of the hypophysis. The only other actual error noted is in the numbering of the footnotes on page 200. The section on the teeth, consisting of 17 pages with 20 very excellent illustrations, is remarkable for its detailed inclusiveness, but on the other hand there is only one short paragraph (with no illustrations at all) devoted to the blood vessels of the heart. This is an example of the lack of balance between the medical or clinical importance of some subjects and the amount of discussion given them in the text. It is amazing to find the author apparently giving tentative support to the theory of "preformation" of adult structure in spermatozoa, stating that the theory of "epigenesis" is not proved any more than the medieval theory.

The fabrikoid binding is durable and neat in appearance. The glareless paper and large type make reading the book a pleasure.

Joseph Thomas Roberts, M. D.

*The* 1936 *Year Book of General Medicine*: By George F. Dick, M. D., Lawrason Brown, M. D., George R. Minot, M. D., S. D., F. R. C. P., William B. Castle, M. D., A. M., William D. Stroud, M. D., and George B. Eusterman, M. D. Chicago, The Year Book Publishers, 1936. pp. 848. Price $3.00.

This book is another of the yearly editions which brings together, in condensed form, the important original contributions to the fields of metabolic and infectious diseases, diseases of the chest, hematology, cardiology and gastro-enterology. The distinguished group of editors is unchanged. Their comments appended to the abstracts add immeasurably to the value of the book and lend authoritative interpretations to the work reported. Such evaluations are particularly welcomed by those not possessing a detailed knowledge of the field concerned.

This new edition again remains one of the most readily available sources of recent advances in the fields covered, particularly for those with insufficient time to glean such work from the literature.

William A. Sodeman, M. D.

*A Synopsis of Surgical Anatomy*: By Alexander Lee McGregor, M. Ch., Edin.), F. R. C. S. (Eng.) with a foreword by Sir Harold J. Stiles, K. B. E., F. R. C. S. (Edin.) 3rd ed. Baltimore, Wm. Wood & Co. 1936. pp. 664. Price $6.00.

This volume is a compend of surgical anatomy and it brings out in a concise manner the essential features of virtually every surgical procedure. It is well written and the contents are so arranged that each chapter is complete in itself; therefore, it is exceedingly worthy as a reference to the busy surgeon. The bibliography, however, which is listed at the bottom of each page, is not voluminous. It would hardly suffice for student reference and was not intended for such use.

The book is arranged into two almost equal parts; one part deals with the anatomy of the normal and the other with the anatomy of the abnormal. In reading, one is struck by the absence of theory and the amazing amount of data so concisely enumerated. Perusal is so effortless and enlightening that only a master surgeon and anatomist could have written such a volume.

The illustrations are diagrammatic and rightly so for a volume such as this one. Acquisition of this book is heartily suggested.

M. Lyon Stadiem, M. D.

*Truants*: *The Story of Some Who Deserted Medicine, Yet Triumphed*: By Lord Moynihan, K. C. M. G., C. B. of Leeds. Cambridge, The University Press; New York, The Macmillan Co. 1936. pp. 109. Price $1.40.

In his inimitable way, the late Lord Moynihan tells of the many physicians who deserted the ranks of medicine and triumphed in other fields of human endeavor. He parades before us an array of figures, many of whom became famous as authors, architects, artists and scientists. It is a revelation to find that so many great names in history were nurtured at the fount of medicine and Moynihan remarks that the excellent training and discipline that results from the study of the healing art must have been responsible in great part for the later success of these men. To those who love to delve into the literature and history of medicine, the reviewer recommends this most interesting and informative booklet. It is, in the mastery of any subject that he undertook to discuss and in literary style, the equal of any of the great authors of today, that Lord Moynihan laid in great part the foundation of his world-wide fame and acclaim.

I. L. Robbins, M. D.

*Digestion and Health*: By Walter B. Cannon, New York, W. W. Norton & Co., Inc. 1936. pp. 160. Price $2.00.

For years Cannon has been an integral part of the great advances made in the studies of digestion, from the physiologic standpoint as well as for his famous studies of the role of the emotions in health and digestion. Into this small book he has written a popular, concise, factual treatise for the layman. To physicians familiar with his classics, such as the "Wisdom of the Body," this present work is merely a brief repetition; to those not so, it is a challenge to familiarize themselves with a subject that today looms big in the modern concept of medicine, for it was Cannon who detailed in great part, the fundamentals of the autonomic nervous system, which has of late become a virginal field of surgical exploration.

I. L. Robbins, M. D.

*Principles of Chemistry*: By Joseph H. Roe, Ph.D. 4th ed. St. Louis, C. V. Mosby Co. 1936. pp. 475. Price $2.75.

It has been a pleasure to examine thoroughly Roe's "Principles of Chemistry." The text covers all important principles which are fundamental or essential for instruction of chemistry in schools of nursing. The reviewer is particularly impressed with the chapters dealing with Nutrition and Vitamins. Not only is the book thoroughly up to date and unusually comprehensive, but it is also exceptionally suited for students interested in physiological and clinical phases of chemistry.

E. F. Pollard.

*A Textbook of Surgery*: By John Homans. 4th ed. Springfield, Ill., Charles C. Thomas. 1936. pp. 1267. Price $8.50.

This is the fourth edition of this very important textbook of surgery since 1931. It has been compiled from lectures and writings of members of the Surgical Department of the Harvard University Medical School. Not only because of the eminence of its contributors, but also because it presents the fundamentals of surgery with admirable fulness, this book is one of the more acceptable texts for the student and practitioner. It is modern and inclusive, and each edition has been considerably modified and improved. As was mentioned in a review of a previous edition by this reviewer, a very admirable uniqueness of the volume is the relatively large space devoted to the historical aspects of each subject under consideration. This should stimulate more interest in the casual peruser or the laboring student. The style might be said to be more literary than scientific, which has been much praised by some though it is not conducive to transmission of the greatest amount of knowledge in the shortest amount of space and time, even though it may facilitate the reading. The revised matter concerns amputations, plastics, antiseptics and sterilization, sympathetic nervous system, thyroid gland, treatment of various fractures, and many minor revisions. This book can be earnestly recommended to student and practitioner interested in surgery.

Howard R. Mahorner, M. D.

*Diseases of the Air and Food Passages of Foreign-Body Origin*: By Chevalier Jackson, M. D., Sc. D., F. A. C. S., LL. D., and Chevalier L. Jackson, A. B., M. D., M. Sc. (Med.), F. A. C. S. Philadelphia, W. B. Saunders Co., 1936. pp. 636. Price $12.50.

The numerous and complicated problems presented by all types of foreign bodies in the air and food passages are thoroughly discussed from all angles.

This book is written in a most comprehensive style and should be a necessary part of every endoscopist's library. The problems presented which represent the vast experience of the authors cover almost every conceivable foreign body. The symptomatology and diagnosis of these foreign bodies are discussed at length and form one of the most interesting chapters in this book. The chapters dealing with the treatment and removal of foreign bodies from air and food passages contain valuable information which every endoscopist should possess.

Two-thirds of the book consists of a tabulated list of nearly 3000 foreign bodies removed endoscopically accompanied by salient facts regarding each case. This staggering number of foreign bodies could only be removed by such masters as the Jacksons.

Francis E. LeJeune, M. D.

*Recording of Local Health Work*: By W. F. Walker, Dr. P. H., and Carolina R. Randolph. New York, The Commonwealth Fund, 1935. pp. 273. Price $2.00.

This volume is an attempt to bring together much useful information on record keeping in local health work. It is not the intention of the authors that health departments standardize their systems merely for the purpose of standardization but to develop systems of recording so that the collected information may be conveniently and systematically arranged. More uniform systems would also tend to make it possible to compare results of health work obtained in different communities.

Administrative records which deal with daily reports, budgets and vital statistics are treated in a separate section. Service records for all types of health service rendered in the community are discussed in more or less detail. Throughout the book each phase of record keeping is amply illustrated with forms which have been tested in actual practice.

Although this book has been designed primarily as a reference for public health workers, it can also be recommended as a source of information for any organization or institution struggling with the problems of medical records.

C. C. Dauer, M. D.

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*Diseases of the Newborn*: By Abraham Tow, M. D. New York, Oxford University Press, 1937. pp. 477. Price $6.50.

The newborn seems to be at last drawing more and more attention to his existence, and to the fact that much can be done to lower his mortality rate, therefore Dr. Tow's "Diseases of the Newborn" is very timely. Here the general practitioner has an excellent reference book and the pediatrician has a detailed description of the newly born in general and all his systems, their diseases and their most modern treatment. Frank opinion is given on all subjects, as the condemning of spinal and cisternal punctures in treatment of cerebral hemorrhages. The reviewer is glad that the newly born has become such a fascinating problem that he has brought forth Dr. Tow's book, dedicated to him, the recognition and prevention of his injuries and diseases.

Suzanne Schaefer, M. D.

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*Lectures on Embolism and Other Surgical Subjects*: By Gunnar Nystrom, M. D. Baltimore, Williams and Wilkins Co., 1936. pp. 213. Price $3.00.

This small volume presents in book form the talks which Professor Nystrom gave as the fourth series of The Abraham Flexner Lectureship at the School of Medicine of Vanderbilt University.

The first chapter, entitled "Embolism of the Arteries of the Extremities and Its Treatment", includes a review of the contributions to this subject as well as a discussion of the etiology, the manifestations, the treatment, and the follow-up findings in personal and collected cases. The importance of the time element and other factors which either favorably influence or frustrate attempts to relieve peripheral arterial embolism and thrombosis are emphasized. General principles for selection of cases and operative procedures are presented in relation to the principal arteries. Localization of the embolus by roentgenographic examinations of the affected artery after injection of a contrasting solution is briefly considered. The author does not discuss interruption of sympathetic nerve conduction, arterectomy, or the employment of alternating environmental pressure in the treatment of thrombosis and embolism.

"Pulmonary Embolism and Its Surgical Treatment" is presented in the second chapter. The past and present methods employed for the surgical relief of pulmonary embolism are considered, and the results in the reported cases in which pulmonary embolectomy has been performed are presented.

Th Swedish experiences in combating acute appendicitis are reviewed in Chapter III. The author's personal observations at Uppsala are summarized and the real or apparent increasing mortality in acute appendicitis in Sweden and elsewhere is considered. Non-operative treatment in cases of appendiceal peritonitis is evaluated, and the importance of general education of the public in the matter of acute appendicitis is stressed.

Personal observations and deductions concerning the cellular reaction phenomena occurring in various types of joint effusion form the basis for the fourth chapter. This chapter on cytology of joint exudates includes a classification of the diseases of joint synovia associated with exudation, and the characteristic if not pathognomonic cellular content of the joint fluid in each type of joint lesion is indicated.

The last chapter is devoted to the treatment of medial or intracapsular fractures of the neck of the femur. In his introduction to this chapter the author states: "Bad results in surgery may have different causes. There is the primary disease which is beyond the reach of efficient therapy, or the failing of the physiologic conditions with which mechanical interventions have to work to promote improvement or healing. Or there is the failing knowledge of these conditions which the operation has to fulfill to reach its goal. And there is the defective accuracy or skill in its performance. Or there are incalculable accidental complications. When such different unfavorable conditions take the field simultaneously, it is not astonishing if all our endeavors prove futile. To a large extent this has been the case as to the treatment of medial or intracapsular fractures of the neck of the femur. It is only in the latest decenniums that a brightening up has taken place." Following a review of the methods used in the treatment of intracapsular fractures of the femur, particular attention is directed to the Johansson modification of Smith-Petersen nail fixation. Besides citing Johansson's excellent results, the author gives his personal experiences and expresses his favor for this form of treatment.

AMBROSE H. STORCK, M. D.

*A Textbook of Medicine*: By Charles Phillips Emerson, M. D. Philadelphia, J. B. Lippincott Company, 1936. pp. 1296. Price $8.00.

The ever increasing number of textbooks of medicine has made the interest in improvement over previous books quite keen. The plan of this book is similar to that of standard textbooks, except for a slight shift in the usual order of presentation of the disease groups. Emerson is the sole author of the entire work, including the last two parts devoted to diseases of the nervous system and psychoneurotic disorders. The book was written for the benefit of students and physicians. It adds very little that is new, except in its physical make-up, being printed on dull paper and containing many terms in bold type. These features make it easier to read. An excellent feature of the text is the great number of lengthy explanatory footnotes, which include discussions of pathologic physiology, historical medical events, short biographies of the great contributors to medical science and other similar subjects that may be of interest in a particular disease. There is a good bibliography given after the discussion of each disease or group of diseases. The text is very complete in the diseases and syndromes presented. In general, the material presented is up-to-date, although at times the discussions are very inadequate.

There is no section that stands out particularly, most of the sections being rather thoroughly presented. The sections on diseases caused by animal parasites and diseases due to drugs and poisons lack thoroughness more than any of the others. Throughout the book there are some discussions that are wanting, for instance, the use of the complex iodine compounds (anayodin, chinofon, etc.) in the treatment of amebiasis, the classification of the lesion of pulmonary tuberculosis, the "Addis count" of urinary sediment, and the like. The author has not placed enough emphasis on pathologic physiology, pathology as related to the clinical manifestations of the various diseases, electrocardiograms, renal function tests, and the disturbed biochemistry in diabetes mellitus.

On the whole the author has admirably handled his great task of writing a complete textbook of medicine. The book surely will serve as a good reference book for students and physicians. For teaching purposes the book probably will not replace the text books written by many contributors who are particularly trained in their respective subjects.

G. E. BURCH, M. D.

*Carcinoma of the Female Genital Organs*: By M. C. Malinowsky and E. Quater; Translated from the Russian by A. S. Schwartzmann, A. B., M. D. Boston, Bruce Humphries, Inc., 1936. pp. 255. Price $5.00.

This symposium, consisting of eleven chapters, is well worth reading. The handling of the pathogenesis, etiology and pathological anatomy shows careful consideration. The summaries of possible methods of treatment, palliative, surgical and nonsurgical, are clear and well rounded. There has been no stinting on description of the various procedures used in treating neoplastic growths.

The illustrations are adequate. The statistical data as presented differ somewhat from the generally accepted figures but seem to be well substantiated. The translation does not suffer from stiltedness.

ZACHARY J. ROMEO, M. D.

*Physical Diagnosis*: By Ralph H. Majors, M. D. Philadelphia. W. B. Saunders Co., 1937. pp. 457. Illus. Price $5.00.

Starting with a chapter on the historical development of the methods of physical diagnosis, the author considers the examination of a patient from general inspection through systematic examination of each bodily system. Many original historical descriptions of methods of examination and physical findings are quoted and prove most interesting. Consideration of the cardiovascular system and lungs takes up about one-half the book, and the two chapters on findings in cardiovascular and pulmonary diseases, though not especially detailed, are well written and should be of great value to students.

The section on abdominal examination is relatively brief and incomplete. For example, methods of examination of the inguinal rings for hernia and many rather commonly used procedures for the examination of the acute abdomen are considered only briefly or not at all. Intentionally, the author gives only a short chapter to an outline of the neurologic examination, yet in the chapter on examination of the lower extremities, an appreciable amount of space is used repeating a discussion of reflexes of the lower extremities, though in the same discussion reflexes of the upper extremities are not considered.

Electrocardiograms and laboratory procedures are purposely not considered and roentgen rays are mentioned merely as an aid in demonstrating physical findings. Illustrations and pictures are freely used, some of which are of definite value, yet the use of so many is of questionable value. For example, eight pictures of ascites in different conditions are shown, and two pictures of cancer of the umbilicus occupy about a half a page. The reviewer feels that the use of fewer pictures would have improved the text. Some repetition of the pictures could have been avoided and many of these things could be better demonstrated on the patient. The space saved could have been used for more complete discussion on the mechanism of production of normal and abnormal physical findings. As the author intended, the book is of no value as a reference or encyclopedia of physical diagnosis. It is written as an aid in teaching physical diagnosis to students. As such it is a satisfactory, but not outstanding work.

George F. Ellinger, M. D.

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*Surgical Diseases and Injuries of the Genito-Urinary Organs*: By Sir John Thomson-Walker, D. L., M. B., C. M. Ed., F. R. C. S. Eng. 2d ed. rev. & ed. by Kenneth Walker, M. A., M. B., B. C. (Cantab.), F. R. C. S. Eng. Baltimore, William Wood & Co., 1936. pp. 974. Price $10.00.

This book is a thoroughly revised and rewritten second edition of Sir John Thomson-Walker's original text which appeared in 1914. This revision has been done by Mr. Kenneth Walker, with the concurrence and aid of the author. Four new chapters have been added, namely on Renal Function Tests, Transurethral Operations, Obstructions at the Bladder Neck and Impotence and Sterility. It has been the aim of the editors to bring the book up to date without increasing its bulk any more than was necessary, and without changing the style of the original author, except to add the four new chapters.

The work is a textbook, designed primarily for the use of students and general practitioners. It is complete in that it covers every phase of urological practice, but is necessarily brief in most instances. Naturally the British point of view is presented in discussing numerous subjects where there exist optional methods of handling. This is particularly true with regard to many surgical procedures. These procedures, incidentally, are clearly described in detail, with profuse illustrations, and this should make this text a ready reference work for urologists whenever they wish to run over quickly the high points of any surgical procedure.

Due to the tremendous advances which have been made in the field of urology since 1914, the editor has been forced to add a good deal to the text as well as to alter much of it. In his discussion of the newer methods of diagnosis and treatment now at our disposal, as, for example, prostatic resection, he shows a markedly conservative attitude, which is very commendable in a textbook, as it guards student readers against over-enthusiastic acceptance of new and unproven practices.

W. E. Kittredge, M. D.

*Synopsis of Diseases of the Heart and Arteries*: By George R. Herrmann, M. D., Ph. D. St. Louis, 1936, The C. V. Mosby Company. 344 pp. With 88 text illustrations and 3 color plates. Price $4.50.

By elaborating his lectures given at the Tulane, Texas, Michigan and Washington Medical Schools, the author has provided the medical student and general practitioner with an admirable indexed epitome of the principles and modern concepts of the practice of cardiology. The writer's extensive experience and well known ability in the teaching and practice of diseases of the heart and in the experimental laboratory investigation of cardiovascular problems justifies his attempting to select the few most useful features of the various topics, although ncessarily many interesting and possibly equally essential inclusions of larger monographs have been omitted or dealt with sketchily. Throughout, he has persisted in emphasizing the desire of the American Heart Association to establish the trinity in diagnosis, namely, the etiologic factor, the anatomic lesion, and the functional derangements. The classification used is a practical abbreviation of the outline approved by the Association. The best written and most instructive chapters are those on: "Study of a Patient Suspected of Having Heart Disease," "Common Instruments used in Clinical Heart Studies," "Disorders of the Heart's Action," "Disturbances of the Myocardial Function" and "Detailed Treatment of Congestive Failure." The chapter on "Electrocardiography" is very complete but at the same time does not lose the intent of aiding the neophyte in this basic branch of cardiac analysis; the fact that the author has been one of the most consistent contributors to the science for the past two decades makes this probably the most valuable portion of his book. Important advances in the explanation of the fundamental biochemical physiology of heart failure have been made by Dr. Herrmann and his associates, but only a very brief mention of this is made; one wishes for a more exhaustive review of the possible clinical applications of his theory of the biochemical basis of failure. This rests on the labile effects of the disturbed phosphocreatine, glycogen, creatine and lactic acid metabolism in the heart, as well as in the periphery. The clarity with which the various syndromes are described is remarkable. The text is abundantly enriched by illustrations which are graphic, appropriate and for the most part original. However, a few of the photographs of specimens, for example figures 52, 53, 54, 55, 57, and 67, suffer so much from poor technical reproduction as to be of little value. Approximately twenty errors in spelling or punctuation came to the reviewer's attention, such as "cornus arteriosus" for conus, "Botal" for Botalli, "Vasques" for Vasquez, "Tetrology" for tetralogy, and "Aneurysm of the heart *of* great vessels." It is difficult to see why the simple technic for and conclusions drawn from blood pressure readings should be discussed at length in two separate places, as is found beginning on pages 47 and 102. Only thirteen pages are devoted to diseases of the great vessels and of the peripheral vessels; this is not enough to give even the medical student the information needed and tends dangerously to minimize the importance of these conditions. The inclusion in the title of "Diseases of the Arteries" is not justified. Congenital heart disease does not receive the attention to which it is entitled by our present interest in diagnosis specifically of these bizarre cases. One looks in vain for details of the indication for various forms of treatment, especially surgical, in cases of pericarditis; this would be of great interest to general practitioners. In other respects however, the author's discussion of treatment of different forms of heart disease is much more to the point than is found in even much larger books. This emphasis on treatment is what makes the volume one which should be of great value to the specialist in heart disease. The physical characters of the synopsis, such as type, paper, binding and size, are of excellent selection and make for easy readability.

Joseph Thomas Roberts, M. D.

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*Light Therapy*: By Frank Hammond Krusen, M. D. 2d. ed. New York, Paul B. Hoeber, Inc., pp. 238, 42 illus. Price $3.50.

This editon is only a little larger (some 52 pages, and 25 references) than the first, but it is markedly improved and up to date. It opens with a chapter on definitions and a brief history, traced back to the Ancients. The physics of light and sources of therapeutic light are discussed in a chapter each, followed by one on the need for more accurate selection and specification of therapeutic rays. Just as physicians "today administer only the active ingredients of drugs"—"In the future we shall learn to apply only the therapeutically active rays". A considerably changed and enlarged chapter on physiology deals with generalities and points of view on mode of action, with sections devoted to effects on the skin, eye, blood, blood pressure, general metabolism, calcium and phosphorus metabolism, bacteria, pigmentation, and closes with a summary of the views of others on the physiological effects produced by light rays.

The technic of applications, including dosage, is discussed simply and adequately. The Rollier method of gradually increasing exposure, or minor modifications of its basic principle, is favored for general irradiation. Local irradiation with the sun, quartz mercury vapor lamp, the carbon arc and the "cold quartz" lamp are described. Pigmentation is thought to be of value as a prognostic index.

Indications for ultraviolet irradiation are first discussed in a general manner, the regulations of the Council on Physical Therapy of the A. M. A. being quoted and praise given for careful and conservative estimate. "If the physician follows the principles laid down in the Council's statement, he is certain not to be in error". Ultraviolet irradiation for various diseases is discussed in nine consecutive chapters. The conditions, in which the treatment "has been said to be of value", are listed and the evidence is then analyzed in the light of experience (personal and of others), to the end that many diseases are shown to be little, or not at all, benefited. A chapter is devoted to the indications for luminous heat and infra-red irradiation, followed by a discussion of the contraindications to, and the dangers and limitations of, light therapy.

The book closes with a chapter of less than two pages on conclusions. The view-point of the author is illustrated by the following quotations: "Light therapy is still in a chaotic state". "Light therapy has been applied too frequently in an empirical manner, without sufficient knowledge of its effects". "Light therapy (especially ultraviolet therapy) has been recommended in an absurdly large number of conditions". "Ultraviolet therapy *is* indicated for a fairly large number of conditions, and it has an almost specific action on rickets, tetany, spasmophilia, and, when properly applied, on lupus vulgaris. It is a valuable adjunct in the treatment in selected cases of tuberculosis, and in minor degrees of calcium and phosphorus deficiency, as well as in anemia. It has a valuable, but distinctly limited, field of usefulness in the treatment of skin diseases. Ultraviolet light will impart an antirachitic power to the milk of an irradiated mother, or of an irradiated cow, or to directly irradiated milk. Locally, it is probably of value for its superficial bactericidal and cytocidal effects upon indolent and infected wounds and chronic ulcers. It will also improve the tone of unused muscles. It may be used to impart an antirachitic potency to foods and drugs, and also it may be applied to the skin as an adjunct to the administration of such foods and drugs". "Light therapy has distinct limitations and dangers with which its user should be familiar." "Even with our present rather limited understanding of light therapy, it may be said to be distinctly valuable in the treatment of a fairly large number of pathological conditions, and to offer great promise of still further usefulness when more accurate methods of administration are developed and when we have attained more specific knowledge of the therapeutic action of various wave lengths."

This book will be of value to all those interested in the theory and practice of light therapy. It covers the field concisely and represents the last word to date by a prominent practitioner of physical medicine. A few of the quotations from the writings of others are incorrectly ascribed. Although direct irradiation of a lactating woman will increase the antirachitic potency of her milk it is doubtful whether this is true of a cow.

Henry Laurens, Ph. D.

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# WHAT AILS THE DOCTORS?

## PRESIDENTIAL ADDRESS*

C. M. HORTON, M. D.
FRANKLIN

The changing economic and social conditions present no less a challenge to the medical man than to the business man, the agriculturist and the industrialist. The Social Security Act brings additional responsibility to an already overburdened profession. This is a responsibility we cannot dodge. This is a responsibility we dare not dodge if the public health and maternal and child welfare sections of the Act are to be made workable for the best interests of the public and the profession. The spectre of national health insurance or socialized medicine will not down.

Many other problems of importance will arise from time to time, and we must be prepared to lend our assistance in their solution. The United States Public Health Service is now making an intensive fight on syphilis, and already we have been called upon to give our support. The American Society for the Control of Cancer has recently launched a campaign to enlist the women of the United States in a Women's Field Army to combat cancer. Our State Society, through its Committee on Cancer, under the energetic chairman, Dr. John Lanford, is cooperating, as is the Louisiana State Board of Health. Dr. Virginia Webb, as you know, or should know, has been appointed state commander of this army. She brings an intelligent and enthusiastic understanding to her new post, and I bespeak for her your hearty support.

The new Surgeon General of the United States Public Health Service manifests a friendly attitude towards organized medicine, for which we are grateful. The Louisiana State Board of Health is cooperating more wholeheartedly than ever before with the Louisiana State Medical Society. We are indebted to this board for the extension teaching lectures on obstetrics which were given to the doctors of the state without cost, and we hope they may be resumed when funds are available. As a general rule throughout the state, the Parish Health Units are now working harmoniously with the doctors and rendering splendid service. The type of personnel of these units has been greatly improved, and they are now manned by directors possessed of high qualifications and well trained. One need not qualify as a prophet, to be able to predict that, in cooperation with the public health agencies, both national and state, the medical profession will go forward to a new high in service to the public.

With so many new responsibilities and opportunities presented to the profession, let us pause a moment to see if we are prepared to give a good account of ourselves. In Louisiana we have on the roster of the State Society about 75 per cent of the doctors who are eligible for membership, but I dare say that not more than 20 per cent of this number takes any interest in society affairs. I view with considerable apprehension the fact that, as a general rule, the recent graduates take very little interest in the work of the local and state societies.

What ails the doctors?

There may be those who feel that their incomes and their professional reputations have reached the point where they do not need any aid from organized medicine. If this group is so selfish as to be unwilling to aid organized medicine, from which they must have gotten help in reaching their secure position, I can only feel pity for them.

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*Inaugural address read before the Louisiana State Medical Society at Monroe, April 27, 1937.

There may be those who feel that too much stress is being laid on the economic side of medical practice. I wish to say to this group, that the medical profession today has the same altruistic attitude that it has maintained through the ages, and that the medical profession is just as ready today to answer the call of suffering humanity, with, or without recompense, as it has always been. However, in my opinion, it is becoming more and more necessary to look after the economics of medical practice, if we are to be able to maintain ourselves and not become wards of the state.

There may be those who will say they are too busy with their own affairs to devote any time to work in the State Society, yet we all know that the men who are most active professionally, are also most active in organized medicine.

You know, and I know, many able and conscientious men who pay their dues and consider they have done their full duty. They accept all the benefits that come from membership, and give nothing in return. They know nothing, and apparently care less, about the work of the legislative committee of the State Society which protects them against all the cults, isms, quacks, and charlatans. They accept as manna from heaven the repeal of the professional license tax, without pausing to consider how it was effected.

We cannot, in all fairness, accept the benefits that come from organized medicine and fail to return to the public and our fellow members all we can. We must not float with the current and make no effort to assist those who labor in organized medicine.

In a world of change where so many political and economical difficulties beset the profession, it is necessary that the doctors give consideration to organized medicine in order to be able to render the best service to the public, and, in so doing, achieve the best results for themselves.

In my opinion, the lack of interest is due in large part to lack of information as to what is accomplished by the State Society. Despite the fact that the State Medical Journal is well managed and ably edited, and carries in its columns news of the activities of the society, it is surprising to know how many men fail to read it. I have given considerable thought to the problem of how to get such information to the doctors, but so far no satisfactory answer has been found. It can do no harm to express the hope that some day we may have a full time traveling secretary whose business it will be to make contact with the district and parish societies and individual doctors, to the end that all may be fully conversant with the doings of the State Society.

I believe organized medicine has two purposes: To distribute knowledge acquired by research and discovery, and to bind doctors into groups to render the best service to the community. I believe that efficient medical organization is the only way to maintain our high ethical standards, and to preserve those things we prize most highly.

I appeal to the doctors of the state to come to the aid of the officers of the State Society and to take the greatest possible interest in the work of the society, so that we may remain truly "A guild to relieve suffering, to put away death, to grow in scientific grace, and to add to the world's weal."

# TEACHING THE PUBLIC ABOUT HEALTH*

W. W. BAUER, M. D.†
Chicago

There are two very definite types of opinion on the question of teaching the public about health. There are those in the medical profession who believe that the public should not be taught about health on the grounds that the amount of information which it is possible to convey to them and which they are capable of assimilating will have no effect except to confuse them, and to make them think they know more than the doctor, to tempt them to self-diagnosis and self-treatment, and to make them perhaps even more ready prey to the fakir, the charlatan and the quack than they already are. That is one viewpoint.

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*Address before the House of Delegates of the Louisiana State Medical Society, Monday, April 26, 1937.

†Director, Bureau of Health and Public Instruction, American Medical Association.

The opposite viewpoint holds that the best attack to charlatanism, quackery, faddism and misinformation is a consistent program of education in health.

I believe those two points of view are not irreconcilable. Much of the so-called health teaching of the public has been of a type that deserves the condemnation which it has received from the medical profession because it was, in effect, not teaching about health but teaching about medicine, and I hold with those who believe that it is unwise and unprofitable to attempt to teach the public medicine. But I do not hold with those who believe it is unwise to teach the public about health. I believe the public can be taught about health and must be taught about health, and I believe if we look about us we will see that the public is being taught about health whether we like it or not.

Let us take just a brief glance at the situation all around us in our daily lives. Let us look at the newspapers, for example. There is scarcely an issue of a modern newspaper which does not carry, either from the Associated Press, United Press, International News Service, or other wire service, a story about health, originating perhaps in an institution for research or possibly in a medical school, a medical society meeting, or in a meeting of scientists allied to medicine but not composed of physicians, such as the Association for the Advancement of Science, the American Chemical Society, and similar organizations. These stories reach the public according to the interpretation of the reporter who gets his information from the speaker or the press release at the meeting. They do not always reach the public in the form in which they are delivered at the meeting. They are seldom, if ever, correctly interpreted by the readers. Readers read into them that which they want to get out of them, almost regardless of how the story is framed.

Let me cite for you, as an example, the publicity about dinitrophenol which flooded our papers some years ago. I did not see a single newspaper story regarding dinitrophenol in which there was not at least a paragraph, sometimes a headline, pointing out the dangers of the use of this drug, and yet in our headquarters through Hygeia we got hundreds and hundreds of letters asking for information about the "new, safe and easy" reducing method offered by dinitrophenol "as described in the attached clipping," and the inquirer would send in a clipping containing a long paragraph on the dangers of the drug which had been entirely overlooked.

Looking a little farther in our newspapers, we find health columns and health columns, ranging all the way from good health columns by reputable physicians down to the very worst type of misinformation by faddists who pose as physicians, or who do not even take the trouble to pose as physicians but call themselves food specialists, health specialists, or what have you, and presume to educate the public about their health.

Take a look at the magazines. Consider the new pocket tabloid de luxe, Coronet, which published not so long ago an article entitled, "Is Milk Cancer's Ally?" an article full of innuendo, full of unanswered questions, all tending to the conclusion that because of the large consumption of milk in this country we have an increase in the prevalence of cancer, a thesis totally without scientific support and yet an article that appearing in that magazine, which has had a great popular vogue, caused thousands of persons in this country to be afraid to drink milk and made it necessary for medical societies, health departments, and the Journal of the American Medical Association to point out that there is absolutely no proof of any connection whatsoever between milk and cancer.

Take another popular magazine which, as far as the public knows, is just an ordinary fiction magazine more or less in competition with Collier's and the Saturday Evening

Post, and which few people realize perhaps has fallen into the hands of one of America's —shall I say—outstanding or conspicuous health faddists, Bernarr MacFadden—I mean Liberty. Liberty in a recent issue, taking cognizance of the prominence lately given to syphilis, published an editorial in which Mr. Bernarr MacFadden claims for himself the distinction of having been the first in this country to dare to publicize syphilis, and in which he has the consummate effrontery to refer to his own recommendation for the treatment of syphilis, namely, prolonged fasting followed by an exclusive diet of raw milk, and in a little paragraph tucked away down in the heart of the editorial, where few people will see it, he concedes there might possibly be some merit in the more complicated methods of drug therapy advocated by the medical profession!

That is health education as the public receives it today, whether we like it or not. There are many other instances. There are some good things that are being done. I think Fortune is to be commended for its excellent article on cancer, and many other magazines are carrying good articles on health from authentic sources from time to time, but the public is not in a position to discriminate between the good and the bad. They will accept an article like the one in Coronet on milk and cancer, or the editorial in Liberty on milk and syphilis, just as readily as they will accept a sound, authentic article by a physician in good standing who knows whereof he speaks and who is not writing primarily for the sensation which he can create.

So that in the newspapers and in the magazines the public is being educated about health whether we like it or not, and the same thing is true, of course, of radio. You know what the radio publicity in this country is. You know the commercial announcements advocating preparations that we know are not what they are represented to be. You know the insidious propaganda about getting our public over to the alkaline side via fizzy mixtures heavily loaded with aspirin, which is mentioned in radio broadcasts only by its lengthy chemical name which the average listener does not identify. You know the propaganda about certain laxative crystals that was soothingly purred into the ears of our people via the radio networks several years ago. You know that more and more by radio and, as well, through the editorial pages of our newspapers and magazines, we are getting a propaganda that has to do with health.

I wonder if you have noticed the evolution of one of our most prominent quack preparations. I refer now to Eno's Salts. Eno's Salts used to be called Eno's Fruit Salts, and the Bureau of Investigation of the American Medical Association exposed the fact that they had nothing to do with fruit, and under the Federal Food and Drug Act the label was changed and they became Eno's Effervescent Salts. Now, in deference to the popularity of alkalization, we find them advertised in the pages of high-grade magazines as Eno's Alkaline Salts.

So the public is being educated about health, and the question for the medical profession to face is this. Have we a duty to enlighten the public, to give them an opportunity to develop their sense of discrimination, or have we not? The medical profession officially answered that question in 1911 when it established a Council on Health and Public Instruction, a council which functioned until 1923, at which time it went out of existence and was replaced by a bureau which was headed first by Dr. Victor C. Vaughn, then by Dr. Olin West for a very short time, then by Dr. John M. Dodson, until 1932 when your present speaker succeeded to the direction of that bureau.

The bureau has been engaged, since the very beginning, in developing information for the public. That information is developed in four principal ways, and I mention those ways not for the sake of giving you a description of the work of that bureau which can be of only secondary interest to you, but for the purpose of laying before you, in the hope that you will carry it back to your own constituencies, the ways in which that bureau can be of service to you.

First of all, the bureau operates by making use of radio. Radio is a very romantic medium. It still is marvelous to consider that we can breathe words of more or less wisdom into a microphone in a studio on the top floor of a hotel and have them received in a shack in a moving automobile, or almost any place where a receiving set can be set up. We often overlook, as we consider the mechanical marvels of radio, the fact that we must be more careful, than many times we are, in the material that we deliver to that radio for transmission to the ultimate hearer.

There are certain points about radio that I believe it is worth your while to know. In many communities there is a radio station. The medical society may or may not be using it. If the medical society is not using it, perhaps it is because they have never known that radio management is very willing to give time for medical societies to deliver health programs. I say "give time," not to sell time, because radio stations are licensed to use a portion of the public domain, namely, the ether, on the principle that they will broadcast "in the public interest, convenience and necessity." That phrase is quoted from the Federal Communications Act. Radio stations will give time to medical societies, asking only that medical societies will utilize that time to the best possible advantage for delivering health messages to the public.

Radio time can be used by giving talks, by interviews, or by dramatic presentations. The talk is the simplest and the least effective, but it need not be quite as deadly as it sometimes is. A radio talk for the public cannot take the form of a scientific paper for a medical society. A radio talk for the public must take into consideration a mixed audience of widely varying types of people, many of them almost illiterate, few of them of a mental age greater than fourteen or fifteen years, and a good many of them not very much interested in health. Therefore, a radio health talk must strike a popular note at the very beginning or it will have no listeners beyond the first fifty words. A radio talk must not have too much information. It should have preferably not more than one idea, coupled with one laugh and one tear, and it has been said that a good thing to do in delivering a radio talk is to tell the audience what you are going to talk about, then talk about it, and then tell them what you have been talking about, because repetition may be necessary for comprehension. Also, there are listeners who tune in early and tune out early, those who tune in late and do not hear all the talk. Above all, radio talks must represent the consensus of opinion of the medical profession and not the individual views of the speaker.

Moreover, the speaker must be identified. I know medical societies in many instances have acted to the effect that radio may be used if the speaker is not identified. That is tantamount to saying that radio will not be used, because no one will listen to an unidentified speaker, and radio management will not long tolerate a program in which the speaker is not identified. He need not be identified with all his titles, his specialties and a great deal of personal exploitation, but he must be identified by name and as a member of the county society sponsoring the program. If that is done, it is a constructive service to the public, giving them helpful information, and it is also a good service to the medical profession.

Radio is a powerful medium if we use it correctly, and we should use it because of the good we can do in counteracting the false information about health with which the air is filled.

In the same way, we should provide speakers on behalf of organized medicine for the numerous organizations now seeking speakers in our communities. Rotary, Kiwanis, Lions, Optimist, Exchange, all those luncheon clubs, women's clubs, parent-teacher associations, study groups, high school assemblies are all seeking speakers. The tremendous romance that is contained in the history of medicine, the marvels of medical progress can be presented to these audiences and, incidentally, they can be made to see the viewpoint of organized medicine toward threatened changes which bid fair, if they are accomplished, to undermine the practice of medicine, to throttle progress as it has been throttled in countries under dictatorship, and in many ways to disturb the essential relationships between doctor and patients. We[1] can be of material assistance to doctors in preparing public addresses, by loaning them clippings and outlines.

The speakers' bureau must be operated under the same principles as the radio program. It must be under the control of organized medicine. The speakers must present not their own individual opinions but the accepted consensus of medical opinion. They should be assigned by the medical society. Groups should be encouraged to ask for speakers on certain subjects, not for individual physicians. The society will assign the individual physician, and in that way there will be no opportunity for the man who perhaps has a little better speaking ability to get more than his share of publicity.

I think we must accept the necessity of a certain amount of personal publicity for the men who participate in this kind of a program. It is perhaps a slight deviation from our ancient ethics, but it is not a fundamental change and the publicity is incidental to the service rendered the public and the medical society. It is a necessary concomitant of successful communication to the public.

Let me call your attention to publications as another means of reaching the public. The local medical society usually will not issue its own publications, but it may, and I believe it should, fall back upon the publications issued by the American Medical Association which is, of course, the organization that represents you in the national field. I refer especially to Hygeia which is a very useful adjunct to the doctor and, in my judgment, should be on his waiting room table, and I refer to something in connection with Hygeia, namely, the Hygeia clip sheet, a monthly rewrite of Hygeia articles in newspaper style sent out about the time of Hygeia's publication. It seems to me every county medical society secretary could make good use of the Hygeia clip sheet because it contains information which can be coordinated with local news events. If you have an epidemic of diphtheria, perhaps a newspaper rewrite of a Hygeia article on diphtheria might be constructively used by your local society in your local newspaper.

You should at all times keep in close touch with your editors. Suppose a program for diphtheria prevention is started; suppose a program of smallpox vaccination is started. Your newspaper carries an announcement, and before you know it your editor receives a letter from New York. That letter may be signed by one of several estimable old ladies who spend their lives in opposition to medical research on the ground that it is unjustifiable torture of animals. In other words, these people call themselves anti-vivisectionist. They publish harrowing tales of the alleged tortures perpetrated in laboratories of scientific research. They minimize and even deny benefits to public health from the use of animals. They misquote excerpts from reputable medical journals in support of their specious stand, and the editor is apt to publish those letters if he does not know better or if he does not know the medical profession in his own community is receptive to consultation with the editor. In other words, if you can get your newspaper editors to get in the habit of consulting you on medical news, letters, and all kinds of medical matter including editorials, you will not be embarrassed by having your newspaper editor, in all sincerity, write an editorial that scuttles your legitimate projects in the community.

Those are the media: The radio, the speakers' bureau, the press, and the pamphlet. The pamphlet is useful in a number of ways. A great many pamphlets are published by the American Medical Association through the Bureau of Health and Public Instruction, the

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[1] Bureau of Health and Public Instruction, American Medical Association.

Bureau of Investigation, and the Bureau of Medical Economics. These pamphlets are all published at a nominal cost. Many of them contain information in condensed form written by outstanding men in medicine, obtainable nowhere else so conveniently and so cheaply.

In your local libraries you undoubtedly have many books containing old information, erroneous information, books by faddists, sometimes books by outright quacks. It is worth your while to be in communication with your librarian and to offer advice, perhaps to prepare bibliographies or to call attention to the bibliographies that the American Medical Association has prepared for the American Library Association in order that your local librarians may be guided in the selection of books relating to health. It might not be at all out of order for your medical society or your auxiliary to present your public library, at small expense, with a set of the pamphlets issued by the American Medical Association on health, on medical economics, on nostrums and quackery, in order that students and citizens seeking advice for the preparation of theses, term papers, or papers for presentation before clubs, may find in the reference files of your public library material originating from organized medicine and thus counteract the propaganda of the anti-vivisectionists, the social agitators who would like to turn medicine over to the public welfare departments, and of all those who are trying to make over the practice of medicine today to suit themselves without knowledge of what the practice of medicine involves.

It is for these reasons that it is my firm belief that the doctor has an obligation to teach the public about health. The Trustees of the American Medical Association have endorsed that view. They have provided the material for the radio program on a network of sixty stations of the National Broadcasting Company. They have increased the personnel of the Bureau in order that it might function along these various lines. They have increased its liaisons with various organizations. We are now in a position to advise with respect to the policies of the General Federation of Women's Clubs, of the National Congress of Parents and Teachers, of the United States Children's Bureau, of the United States Public Health Service, of the 4-H Club meetings, and, indirectly, of numerous other organizations.

We want you to know those things, because we want to serve you when local problems arise where you may perhaps be able to make use of the declarations of policy of these other organizations. The Woman's Club in cancer education, the P. T. A. in the summer round-up, the public health authorities in their campaigns; we are in touch with their national headquarters, and we want you to know that we are willing and eager to serve you at any time when perhaps you can cite to a local group which may be going in a direction detrimental to good public policy locally the fact that their local policy is not in accordance with the declared principles of their own national organization.

My purpose in telling you all this is to urge you, when we can be of service to you, to let us know and we will do everything we can. We cannot always have the pleasure of meeting you personally, but we can always write to you, and we are always at your service.

## CLINICAL ASPECTS OF GOITER*

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New Orleans

Goiter is a subject bearing as much interest as it enjoys popularity. There are several major reasons for this: First, because of its frequency and increasing frequency; secondly, because it is one of the few common diseases which is known positively to be associated with an enlargement or hyperactivity of an organ, a hyperactivity which sometimes may be tremendous; thirdly, because of the interesting conjectures as to its etiology and the growing realization of some of the factors which approach enticingly near the solution of the cause; and fourthly, because it is or does become, in the majority of instances, a disease of surgical significance.

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*Read before the Orleans Parish Medical Society, November 9, 1936.

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### ETIOLOGY

Before entering a discussion of the clinical aspects or appearances of the disease, I should like to digress on a brief consideration of some interesting facts which are being brought out regarding the etiology. There are numerous classes of goiter and there are two types which from a pathologic as well as clinical aspect seem to be the antithesis of each other. In one type there is an accumulation of colloid with small flattened (hypoactive) cells ("colloid" goiter); in another there is disappearance of colloid in the vesicles with large columnar (hyperactive) cells ("exophthalmic" goiter). From an etiologic standpoint can these be the same or do they in one instance signify a deficiency, in the other an excess of the same stimulus, or are they each due to a different abnormal stimulus? These and other closely associated problems, are most interesting. In the laboratories of the Department of Surgery at Tulane the problem of the etiology of goiter has been under experimental investigation for the last five years. A total of 75 dogs and 15 guinea pigs has been used to test various stimuli for long periods of time. The results* show that long continued infection does not change the histologic appearance of the thyroid nor does injury to the adrenal, but prolonged administration of calcium chloride in the drinking water causes a diminution or disappearance of the colloid from the thyroid acinus and repeated daily injections of an extract from the anterior lobe of the pituitary causes a diminution of the colloid and an increase in the size of the cells of the thyroid vesicle. In neither instance could these be called colloid goiters, but if goiter at all they are parenchymatous. The results of these experiments, to be reported elsewhere, are supportive evidence that the pituitary gland has an influence on the thyroid and may be the responsible basis for certain types of goiter and secondly, evidence, since calcium chloride administered over a long period of time has an effect on the histology of the thyroid, that hard water may be responsible in some instances for the development of goiter.

### CLINICAL EXPRESSIONS

From a clinical standpoint the manifestations of goiter are local or general or both. Though the prevailing opinion among the laymen is that a goiter is the appearance in the neck of something entirely new and abnormal or among the better informed that it is an enlargement of the thyroid gland, it is conceivable, and actually does occur, that a goiter may be present with a thyroid gland of normal size or one even smaller than normal. In general, people are more cognizant of, and familiar with, the local manifestations of goiter and because of this sometimes to an incredulous one an explanation must be made that a toxic thyroid or toxic goiter may be present although there is no undue prominence in the neck. The systemic symptoms of goiter may be present with or without enlargement of the thyroid gland and enlargement of the thyroid gland may be present with or without systemic symptoms.

The local manifestations of goiter may be objective or subjective. Objectively the appearance may be one merely of cosmetic significance. The patient's friends notice the prominence and repeated remarks make her even more constantly conscious of the presence of something abnormal. Very large goiters in adults, or even small ones in adolescence, from the cosmetic standpoint alone may merit removal. Subjectively an enlarged thyroid may manifest itself to the individual not only by its visible presence, but by pressure symptoms. The patient may merely feel a fullness or in the instance of thyroiditis a stiffness in the neck. Pressure symptoms of goiter usually are due to encroachment on surrounding structures. Function of these structures may be impaired. The three most commonly affected are the trachea, esophagus, and recurrent laryngeal nerve. The trachea may be greatly narrowed, becoming a "saber trachea" or "scabbard trachea", contributing to dyspnea and detectable in the roentgen ray by displacement and narrowing of the tracheal shadow. Pressure on the esophagus interferes with swallowing, especially solids, and pressure on the recurrent laryngeal may result in abductor paralysis[1] of the vocal cord. Such a paralysis may or may not manifest itself by a noticeable hoarseness. If the onset is slow, progressing through various stages of weakness to an absolute paralysis, compensation for the defect may occur as rapidly as the paralysis develops and the symptom of hoarseness may not become manifest. Thus it is always essential for this as well as other reasons to have a laryngologist check the function of the vocal cords before an operation for goiter.

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*Results to be reported elsewhere. Work aided by a grant from the American Association for the Advancement of Science awarded through the New Orleans Academy of Science.

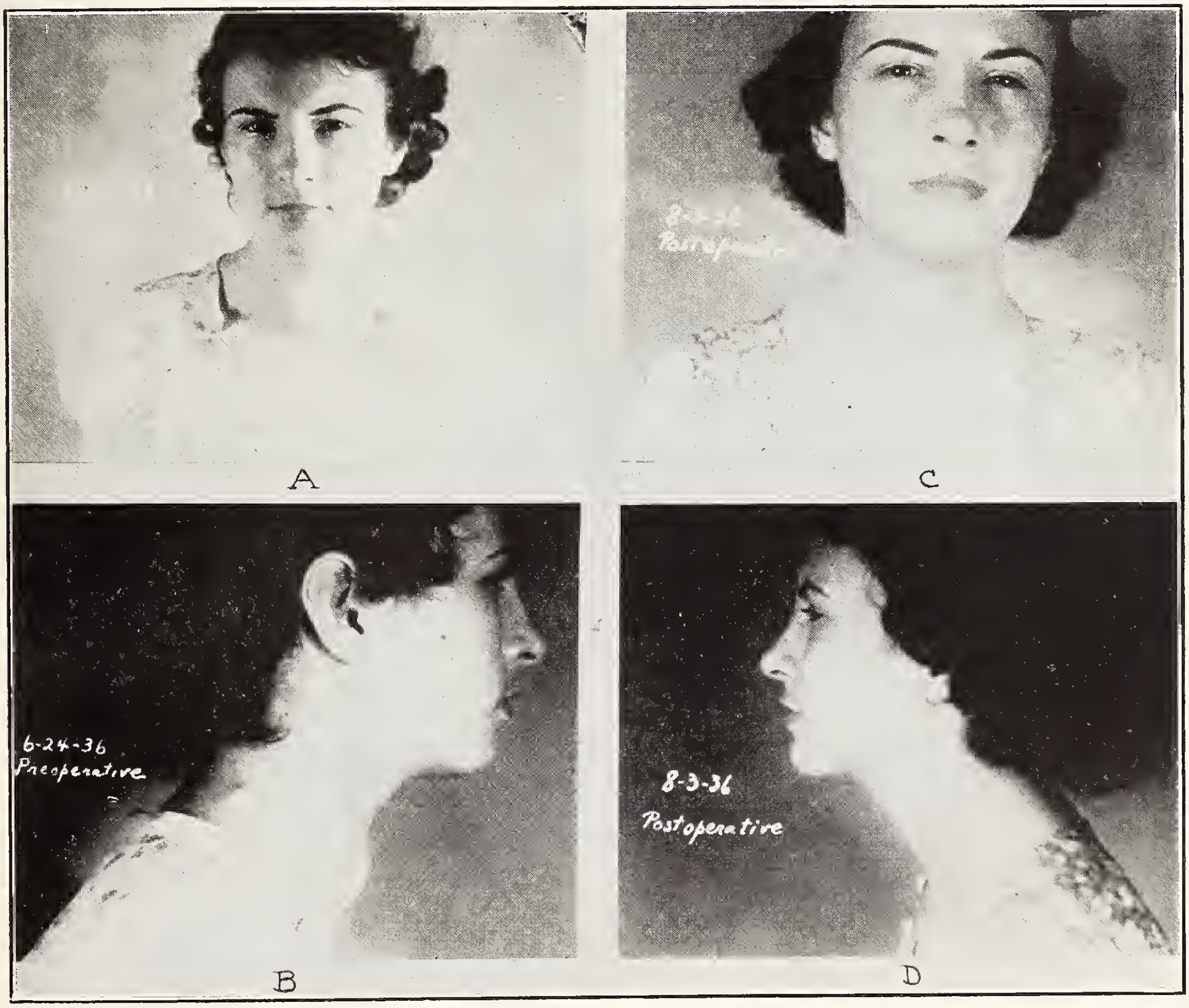

**Fig. 1.** D. F., female, 16, gradual enlargement of neck for seven months. Concerned about it because of the cosmetic defect. Slight palpitation and dyspnea; pulse rate 100. No weight loss. Operation indicated not only because of the cosmetic effect, but also because of impending hyperthyroidism and the danger of neoplastic degeneration. Note the small scar in the front postoperative view.

Among the local manifestations of goiter should be included evidences of substernal extensions; i.e., widening of supracardiac dulness and x-ray evidence. Preoperative roentgen rays never should be neglected. Substernal or intrathoracic goiters cast a shadow and displace the tracheal shadow. (Fig. 3)

The general manifestations of goiter are numerous and extremely varied, the degree and presence of its individual constituent symptoms making a protean clinical picture of the toxic thyroid. Not because it satisfactorily classifies either the clinical or the pathologic manifestations of goiter, but for the sake of uniformity, the Department of Surgery of Tulane University has adopted the classification of goiter proposed by the American Association for the Study of Goiter[2] and given in the Classified Nomenclature of Disease[3]. This classification groups all goiters into four types: (1)

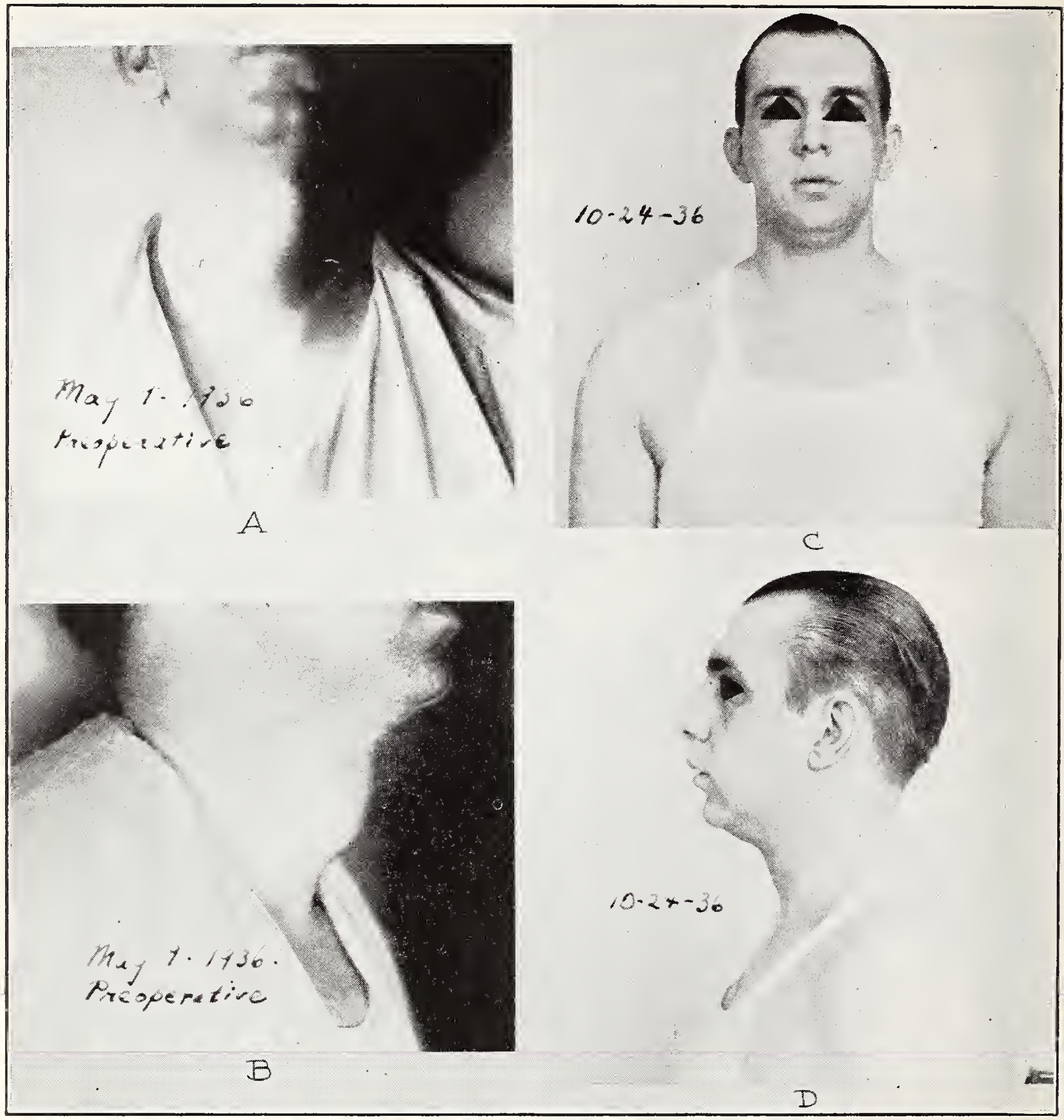

Fig. 2. Male, 24, enlargement of neck for seven months. Rapid increase in size. Basal metabolic rate +15, palpitation, tachycardia, nervousness, and slight weight loss. A and B, preoperative; C and D, four months and a half postoperative.

Non-toxic diffuse; (2) toxic diffuse; (3) non-toxic nodular; (4) toxic nodular.

In the terminology of a more familiar classification simple colloid goiters are the non-toxic diffuse; exophthalmic goiters are the toxic diffuse; adenomatous goiters without hyperthyroidism are non-toxic nodular, and adenomatous goiters with hyperthyroidism are toxic nodular goiters.

It is not an objective now to consider whether goiter is one continuous disease process or several entirely separate diseases, but it remains that of the many clinical pictures of the systemic manifestations of goiter it seems that two types emerge, those in which the systemic symptoms are predominantly cardiac and those in which the systemic symptoms are predominantly from the central nervous system.

### CARDIAC SYMPTOMS

Tachycardia is one of the earliest most constant and most reliable symptoms which manifest toxicity of the thyroid. It may be the only symptom of toxicity. The tachycardia will vary from a constant elevation of 5 to 10 beats above normal to a rate, even when the patient is at rest, of 140 or over. Not only is the pulse rate rapid, but it is extremely labile, showing increases of 10 to 15 beats a minute after even a slight emotional or physical stimulus. Sometimes the surgeon consistently finds the pulse rate to be 10 or 15 beats a minute faster than that recorded by the nurse, not because either of them is incorrect, but because of the emotional excitement connected with the appearance of the surgeon and his more intimate association with the forthcoming operation. In this way in some patients the surgeon may find the preoperative pulse rate always over 100, when others find it frequently below 100. This volatility of pulse rate is an indication of severe toxicity and it is found in the toxic diffuse (exophthalmic) goiter patient more frequently than in the toxic nodular goiter. Symp-

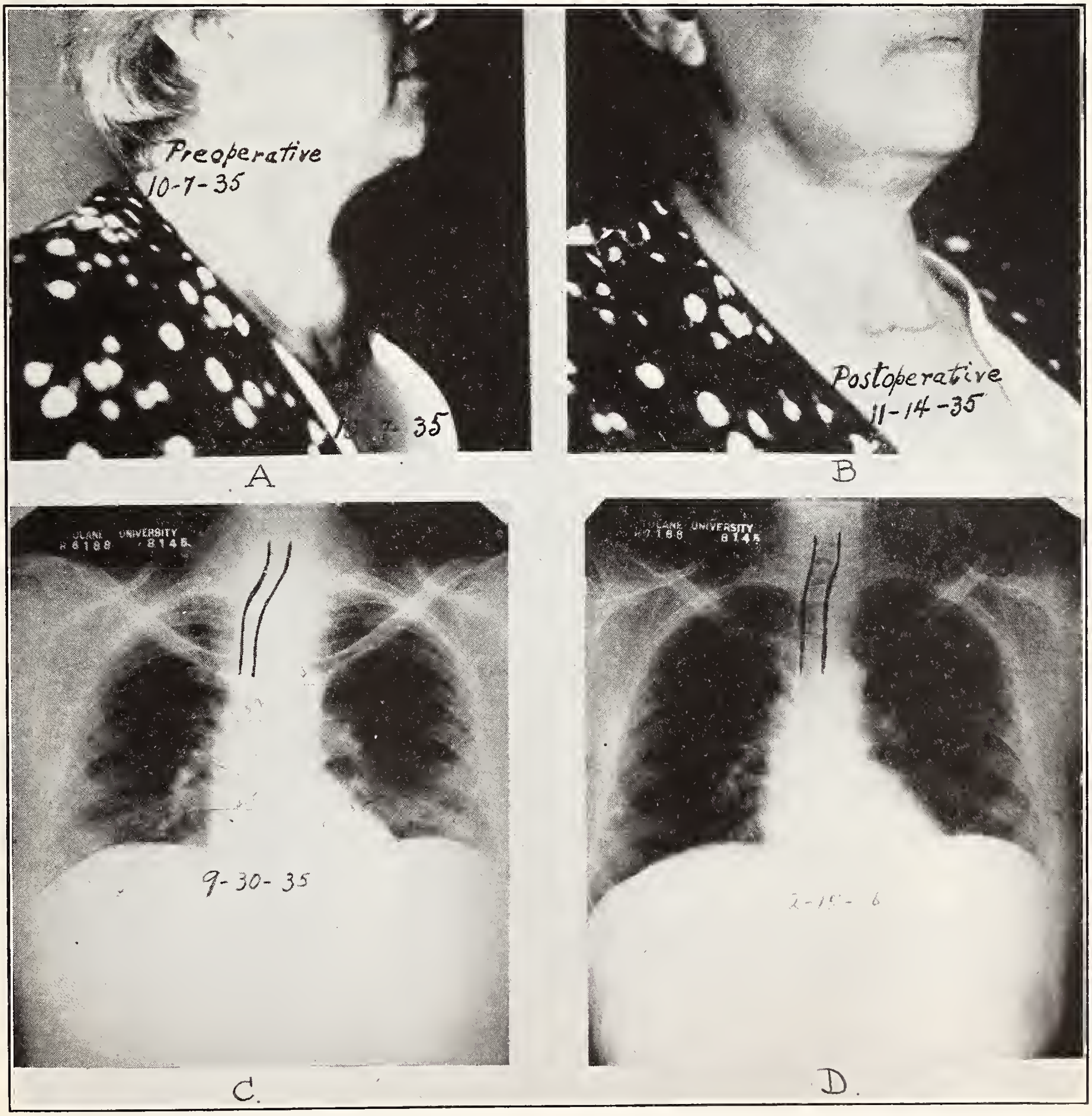

Fig. 3. Female, 49, goiter for 20-25 years. Basal metabolic rate -7, no toxic symptoms. Roentgen-ray (C) before operation shows substernal goiter with deviation of the trachea to the right; roentgen-ray two months after operation (D) shows treachea displaced towards its normal position after removal of the substernal goiter. Complete recovery and freedom from symptoms. This case indicates that before operation a roentgen-ray of the chest is always one of the necessary requirements in studying the case.

toms referable to the heart are due not only to a relative sympathetic hyperactivity but also to direct action on the cardiac muscle as was demonstrated experimentally by Priestley, Markowitz, and Mann[4]. Palpitation and an oppressive feeling in the precordial region, auricular fibrillation, electrocardiographic changes, and decompensation follow in the wake of milder symptoms. It is still unproven whether enlargement of the heart occurs because of hyperthyroidism. In some instances the heart is not enlarged though the hyperthyroidism is severe.

### NERVOUS SYMPTOMS

The nervousness of hyperthyroidism may be analyzed into several entirely different manifestations. The lack of composure is the dominant trait of the nervousness. The patient appears ill at ease, makes many useless movements all with an objective but many with a useless objective. She puts her hand up to her face, puts it down, turns her purse over, crosses her legs, rapidly executing one thing, then another, until sometimes she bursts into tears in defense of having been observed to be so restless. The extreme of this condition is seen when a bedridden unfortunate individual develops tender elbows because of continuous movements of the arms when lying flat on her back in bed.

Besides the objective lack of physical composure, nervousness of the toxic goiter manifests itself in various evidences of emotional instability. The patient may have frequent crying spells, an abnormal tendency to anger, less often she laughs at the wrong time. She may or may not have insomnia. Severe grades of psychoses may develop, characterized by extreme emotional instability, more rarely by irrational states.

Tremor is in reality a manifestation of nervousness. The tremor is rapid with short amplitude of vibration. It is not confused with a gross, slow undulatory tremor of paralysis agitans, which like it is static. That of exophthalmic goiter may best be demonstrated

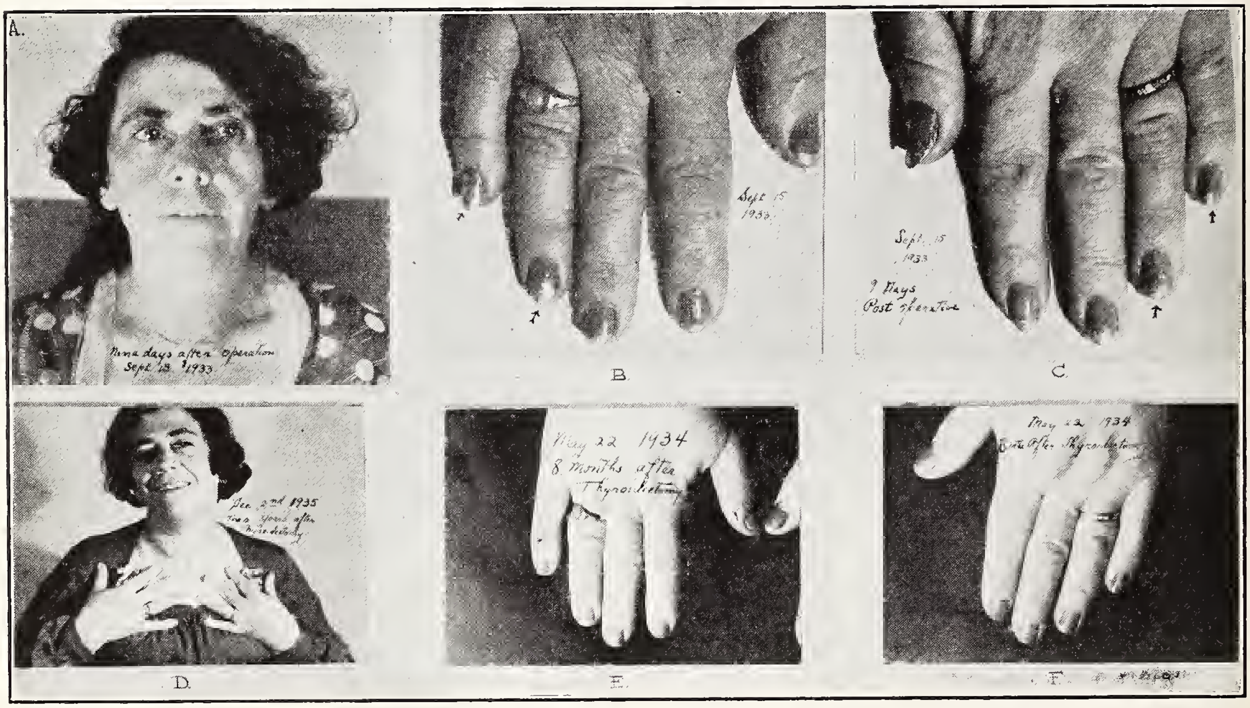

Fig. 4. (A) Shows patient nine days after thyroidectomy for a toxic diffuse goiter. No preoperative photograph was obtained. She was 41, and had an enlargement of the neck of three years' duration, smothering and choking sensation, marked nervousness and excess sweating, and a loss of weight with good appetite. Pulse rate 108, basal metabolic rate +56. B and C show the appearance of the finger nails taken nine days after operation in which the typical changes of toxic diffuse goiter nails are present. There is separation of the nail from the nail bed, especially in the fourth and fifth fingers and a concavity in which dirt collects. The nails split on the end. D shows the patient two years after operation, completely well. E and F shows the hands eight months after operation in which the nails are re-attached to the nail beds and look practically normal. The nail changes are pathognomonic of toxic diffuse goiter.

by having the patient extend the hand and spread the fingers and attempt to keep them still. The movement is a fine lateral vibration which because of its frequency has been called a "bridge tremor". In one of my patients both the tremor of exophthalmic goiter and the tremor of paralysis agitans were observed. The former subsided after operation, but the latter remained postoperatively, though it was less intense.

### METABOLIC SYMPTOMS

Symptoms of excessive metabolism in hyperthyroidism may be considered almost pathognomonic of the disease though they are not always manifest and even in some hyperthyroid states may be so latent as to be undemonstrable even by special means. Among such symptoms are weight loss with good or excessive appetite, heat intolerance, excessive perspiration, and elevated basal metabolic rate. Weight loss may be extreme. In one case operated upon by me a patient had lost one-half her weight, from 180 to 90 pounds; she gained it all back after operation. On the other hand, evidences of severe hyperthyroidism may be present with an inappreciable weight loss. This is especiablly true in toxic nodular goiters in which the toxicity has been secondarily implanted on long-standing non-toxic nodular goiter. In such instances the cardiac symptoms usually predominate. An excessive appetite with weight loss is pathognomonic of toxic goiter. One should not make the mistake, however, of regarding an excessive appetite as a necessity for the diagnosis of hyperthyroidism. In severe cases in which the patient is weakened, the appetite may not be good. This is especially true in cases with gastrointestinal upsets, nausea, vomiting, and diarrhea. Heat intolerance is another symptom which is most important and most helpful in differentiating conditions such as chronic nervous exhaustion from mild hyperthyroid states. This symptom is elicited by asking the patient if she likes hot weather or cold weather better; whether she stands the hot weather well (and when heat intolerance is present she says she cannot bear hot weather); whether she sleeps with as much cover on or wears as many clothes as other members of the family. Excessive perspiration represents an attempt on the part of the body to eliminate the excessive heat generated by the elevated metabolism. It is generalized and does not have a predilection for certain sweat glands of the body as in tuberculosis. Determination of the basal metabolic rate is not only helpful in the diagnosis of hyperthyroid states, but is also most helpful in following an amelioration of toxicity in judging the optimum time for operation. Not infrequently in mildly hyperthyroid states there may be tachycardia with a basal metabolic rate lower than +15 or even zero. In this type of case as the disease advances determinations may show a higher metabolism, but it is no myth that a hyperactive thyroid may be causing great damage to the heart and other organs when the basal metabolic rate determination is entirely within normal limits. On the other hand, other conditions than hyperthyroidism give elevated metabolic rate. Among these are hypertension, leukemia, all febrile states, but not chronic nervous exhaustion which not infrequently must be differentiated from hyperthyroidism. Fever may be a symptom of hyperthyroidsm and is frequently found in the severe forms of toxic diffuse goiter . In these instances it is not high, varying from 99 to 99.3 degrees daily.

### EYE SIGNS

The eye signs of toxic diffuse goiter are well known. Exophthalmos, according to Boothby[5], occurs, however, in only 65 per cent of the cases of toxic diffuse (exophthalmic) goiter, and in approximately 3 per cent of toxic nodular goiter. Its incidence is even less than 65 per cent in toxic diffuse goiter (exophthalmic) in this section of the South. Occasionally it is unilateral. Lagging of the lids when the eyes are rotated downward, failure of convergence, infrequent winking are other signs which may be elicited in certain cases, but one of the most characteristic peculiarities of the eyes in the toxic goiter patient is the stare. The staring eyes of the patient even in the absence of definite exophthalmos fixes one, almost as forcefully as the glittering eye of the Ancient Mariner. Probably slight exophthalmos and infrequent winking contribute this impression.

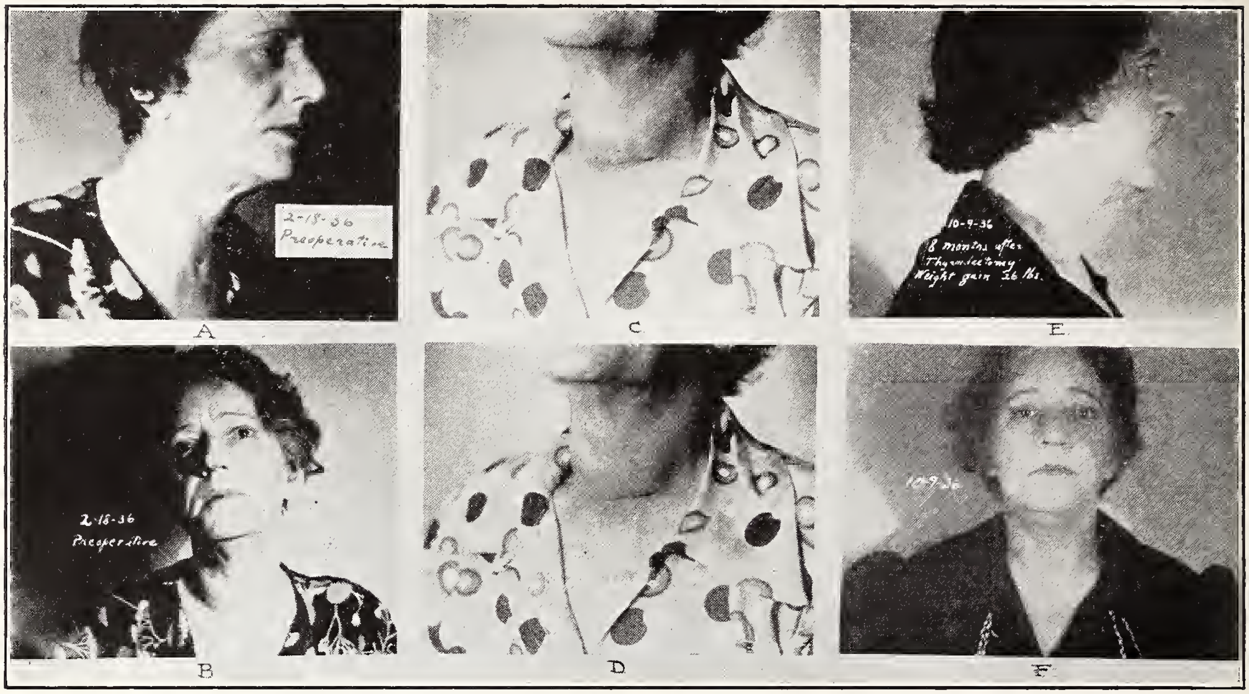

Fig. 5. Toxic diffuse goiter (exophthalmic) of four years' duration in a female 52 years of age. Nervousness with frequent emotional upsets, crying spells, palpitation, tachycardia, loss of weight from 175 to 126 pounds, unilateral exophthalmos. Metabolic rate +38, +42, +40, +25. C and D show the scar three and a half weeks after operation, and E and F the patient eight months after thyroidectomy during which time she has gained 26 pounds in weight and appears more composed. There is some persistence of exophthalmos in the left eye.

### MISCELLANEOUS SYMPTOMS

Certain trophic changes in the skin appendages occur in hyperthyroidism. The hair becomes dry, may fall more than usual. Occasionally the nails present an appearance which is pathognomonic of toxic diffuse goiter. The distal margin of the attachment of the nail to the nail bed is usually convex distally. Occasionally in hyperthyroidism this attachment becomes loosened farther back under the nail and the margin of attachment becomes concave distally. The nail may be unattached thus halfway back from its normal bed (Fig. 4). What the patient notices is that dirt accumulates more easily under the nail, but inspection shows the reason. Moreover, these nails have a tendency to split transversely at their free edge. They split into several layers, some of which break off, leaving an irregular laminated rough, dull, or dirty edge. These changes in the nail affect more commonly those of the third, fourth, and fifth fingers, and when found the diagnosis of toxic diffuse goiter may be made unless some previous trauma has left a deformed nail.

Various changes in the menstrual cycle may occur in hyperthyroidism, usually irregularities with prolongation of the intervals between periods, occasionally complete amenorrhea, especially in the cases with the severer grades of hyperthyroidism.

Among the most important symptoms to be elicited in hyperthyroidism are those bearing on the skeletal musculature. The patient becomes weak, sometimes so extremely that she is bed-ridden. This becomes pronounced in the quadriceps muscles of the thigh. Called quadriceps weakness, it is elicited by having the patient step up on a stool or a chair. Occasionally she cannot step up one foot without difficulty. This sign may be elicited[6] by having the patient sit in a chair and extend the leg at the knee. Weakness is manifested by the shortened intervals the patient is able to retain the leg extended. Pemberton[7] lays much stress on the strength of the patient as elicited by having her step up on a chair in determining the proper opportunity for operation on a toxic goiter. The reflexes involving skeletal musculature are generally hyperactive in hyperthyroidism, more so in the toxic diffuse goiter than in the toxic nodular type.

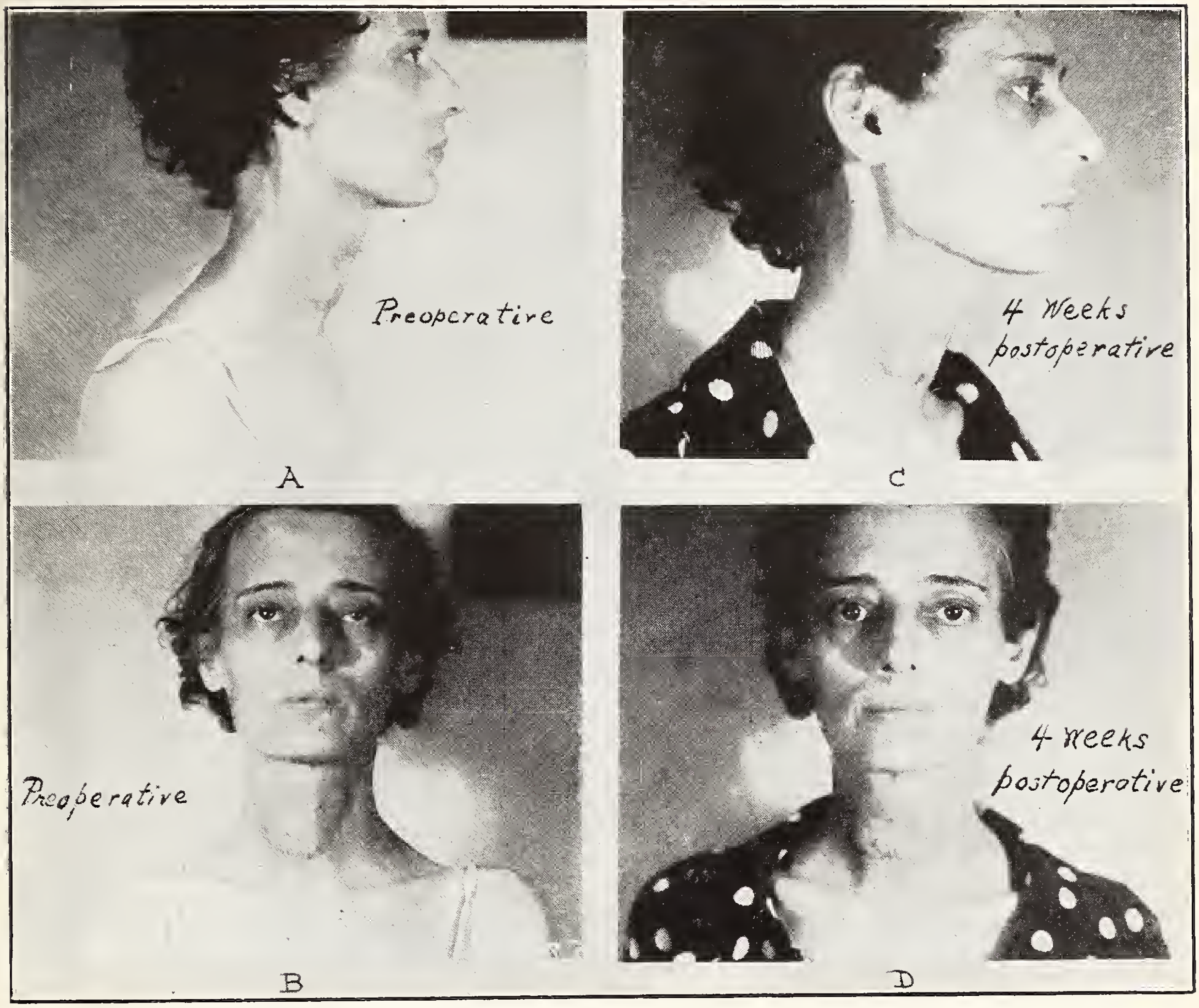

Fig. 6. Toxic diffuse goiter, female, aged 45. Onset in 1932 with nervousness and weight loss from 134 to 87 pounds. May, 1933, lobectomy elsewhere. Thereafter, radium elsewhere with severe reaction each time, continuous loss of strength, and increasing nervousness. On admission signs of extreme toxicity, enlargement of the right lobe, firm, fine tremor and gross undulatory tremor. Pulse 100, basal metabolic rate +62. Patient was extremely toxic and sick in spite of having had enough radiation therapy to produce the radium burn shown in the picture. The scar of the preliminary operation (elsewhere) was placed high. A and B before operation, C and D one month after operation. The patient continued to improve subsequently. She had an associated Parkinson's syndrome with the hyperthyroidism.

Gastrointestinal symptoms attributable to toxic goiter are usually indicative of severe toxicity. They consist of loose stools or diarrhea, nausea and vomiting. Vomiting usually indicates an active crisis or an impending severe crisis. Jaundice, as reported by me[8] and others, is not infrequently a complication of hyperthyroidism and is significant of toxic degeneration of the liver.

The picture presented by the hyperthyroid patient is extremely complex, varied with the predominance of now one, now another type of symptom in the different cases. Intelligent evaluation of a case means meticulous attention to detail of the clinical picture with use of special laboratory aids.

### REVIEW OF CASES

In the Hutchinson Memorial Clinic of Tulane University School of Medicine there have been 124 cases admitted with the diagnosis of goiter in the four year period, October, 1932, to October, 1936. In the same period there have been 10,000 admissions to the Clinic, an incidence of goiter of one in 89 admissions. Forty-seven of the cases were subjected to 51 operations on the thyroid, the excess number of operations being due to multiple stage procedures. Thus only 38 per cent of the goiters

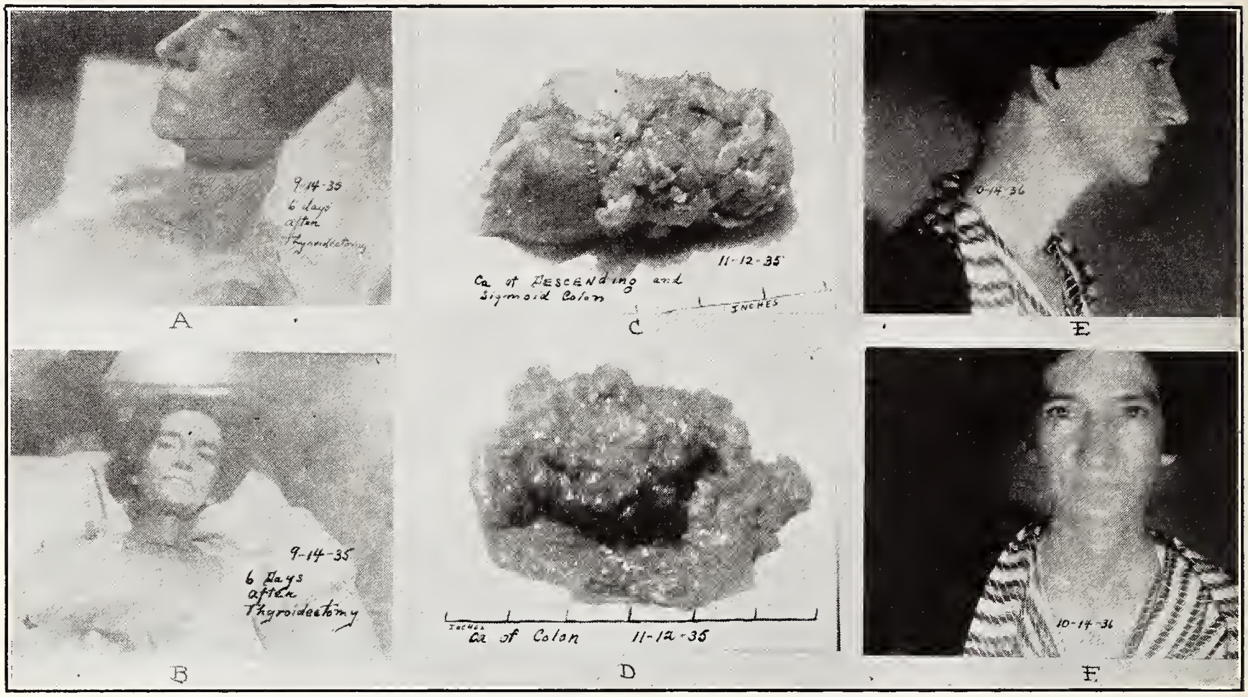

Fig. 7. Showing the association of two major surgical lesions, one a toxic goiter, in the same individual. Female, 42, for six years nervousness, heat intolerance, loss of weight with good appetite. Diarrhea for one year. Examination: weight 85 pounds, pulse 140, enlarged thyroid, mass at left lower quadrant of abdomen. Basal metabolic rate +22. Leukocytes 7,000, red blood cells 2,950,000. Barium enema showed a filling defect in sigmoid colon. Because of patient's thyrotoxicosis and the abdominal lesion, a left lobectomy was done first. A and B show patient six days after thyroidectomy. On the twelfth postoperative day she developed an intestinal obstruction. Colostomy of transverse colon performed September 23, 1935. Resection of the descending and sigmoid colon for carcinoma, November 12, 1935. C and D show the growth removed. E and F, the patient one year after operation. She now weighs more than she ever has in her life and is clinically well. When a toxic diffuse goiter is present in association with another lesion which does not demand emergency intervention, the goiter should be operated upon first, because of the danger of hyperthyroid crisis, should the other major lesion be the primary operation.

were operated upon and study of the number of cases of each type of goiter indicates why the percentage of cases operated upon is low. Of the 47 cases which were operated upon, two were non-toxic symmetrical goiters (simple colloid goiters); 18 were toxic diffuse goiters (exophthalmic); 16 were non-toxic nodular goiters, and 11 were toxic nodular goiters (adenomatous goiters with hyperthyroidism). Practically all of the 77 cases not operated upon were non-toxic symmetrical goiters; i. e., simple colloid goiters which presented neither local pressure symptoms nor general toxic symptoms which would have been considered indications for operation.

The latitude of the indications for operation for goiter must depend upon what can be offered the patient in his chances of recovery. This of course will vary. The patient should not be deluded with mortality rates adopted from other communities. The chances of death must be relatively low, the mortality rate here commensurates with the figures acceptable for other communities for thyroidectomy to be the acknowledged benefit it should be to the patients who need it. An incriminating finger has been pointed at this section of the South by the mortality figures published which might mistakenly be presumed to indicate what must be accepted as a general mortality for what is one of the outstanding medical centers of the United States. In no spirit of boastfulness but to record that in this section of the South, as elsewhere, the mortality may be extremely low, I wish to record no mortality. No deaths in a series of 30 operations for goiter, which includes all operations performed by me for this condition, the first as well as the last.

## SUMMARY

Experimental work done on dogs and guinea pigs indicates that extract from the anterior lobe of the pituitary injected intraperitoneally causes histologic changes in the thyroid gland, and also calcium chloride given in the drinking water over long periods of time causes changes in the histology of the thyroid.

The clinical aspects of goiter are presented by discussing the important signs and symptoms.

There was no mortality and no deaths in this personal series of 30 operations for goiter.

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## DISCUSSION

Dr. Alton Ochsner: Dr. Mahorner's paper calls attention to the fact that goiter which supposedly occurs infrequently in New Orleans, occurs more often than is commonly supposed. The worst type is the toxic goiter. I think everybody agrees at the present time that non-toxic goiters should be operated upon, not for cosmetic reasons, but in order to prevent complications occurring later. Any thyroid, irrespective of age, is a dangerous condition as it may become toxic at any time and may become malignant. The treatment of thyroid disease is generally surgical and is very satisfactory. The only danger is the danger of thyroid crises.

Relatively recently Dr. Lahey presented before the Clinical Congress of the American College of Surgeons 15,030 cases of goiter treated in his clinic with a mortality rate of 0.85 per cent. He showed that death in patients with thyroid crises is due to a condition which Dr. Mahorner referred to tonight; i.e., liver insufficiency. Lahey and his associates found in thyroid crises that the liver function is inversely proportionate to the metabolic rate; i.e., whenever the metabolic rate is increased, liver function is decreased. As therapy, he suggested that these patients require fluids and large quantities of glucose, much larger than we have been giving. Most of us have been in the habit of giving 10 per cent dextrose; he suggested giving 100 c.c. of 50 per cent dextrose every four hours intravenously. He felt that the lack of administration of iodine played less of a role in the death of these toxic cases than is supposed.

In the Tulane Clinic, we have found it necessary as in other clinics to perform more multiple stage operations than previously. This is probably due to the fact that patients are being seen in surgical clinics who have been treated with iodine over a period of time and have become "iodine fast." It is for this reason the multiple stage operation became more common. In some of the larger clinics, as in the Mayo Clinic and in Lahey's Clinic, the incidence of multiple stage operations has increased to 40 per cent and 60 per cent. It is essential that the medical profession realize iodine has no place in the treatment of toxic goiter except as a preoperative measure.

# THE ETIOLOGY OF VENEREAL LESIONS*

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Proper diagnosis of the causal factor in venereal lesions is of equal importance to the doctor and the patient. Its value to the physician lies in the outlining of a correct plan of treatment without time consuming and expensive therapeutic tests. To the patient, it conveys the important facts in his case, whether he has contracted a venereal disease and whether the lesion is infectious. Most physicians regard venereal lesions as the unmistakable sign of a venereal disease, and syphilis, because of its known frequency and serious consequences, is undoubtedly the most feared representative. The exclusive consideration of syphilis as the causative factor of such lesions has been regarded as so important that the search for *Treponema pallida* has completely overshadowed any other diagnostic procedure in the treatment of pudendal lesions. This lack of interest in other etiologic factors must be considered as the principal reason for the slow development of knowledge regarding other diseases of the pudenda although their clinical pictures have often been described.

We can no longer maintain our former opinions regarding the syphilitic chancre as the only venereal lesion of medical importance. We must realize that the group of venereal diseases best defined as infections usually transmitted by sexual intercourse are by no means responsible for all types of lesions encountered on the pudenda and that the term "venereal lesions" implies only an anatomical classification without any etiologic significance. We have been impressed with the fact that a neglected venereal lesion may infect and destroy an entire family. But so great is the fear of the consequences brought about by the socially and often legally ostracized infections that we seldom learn of the cases where humiliation and shame have driven patients, suffering from innocent pudendal lesions, to utmost despair and possibly suicide.

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Even in the hands of the most experienced specialist our clinical methods in diagnosing venereal lesions are insufficient and unreliable. In only a few cases is it possible to obtain a history of an infectious intercourse while most patients are either unable or unwilling to give an exact account of their sexual activities before the infection. Examination of the lesion as to color, consistency and structural characteristics will enable us, in only the most typical cases, to suspect the correct diagnosis.

Laboratory methods are more successful and with their help we are able to solve many difficult venereal problems. There are two important leads given by the laboratory for the diagnosis of venereal lesions: the detection of the causative organism and the recognition of the specific disease process. The determination of the infective agent must be attempted by the methods of diagnostic bacteriology, i. e., the examination of smears from the lesion, cultural methods and animal innoculation. The study of the specific local and systemic reactions of the organism to this agent can be pursued by the methods of immunology and by histopathologic examination of a biopsy from the lesion. A combination of these methods accurately diagnoses the etiology of venereal lesions and often leads to the discovery of secondary factors such as mixed infections or evidence of previous venereal diseases. This knowledge may influence considerably the treatment of the present lesion.

To facilitate the correct diagnosis of venereal lesions the "scraping clinic" of Charity Hospital was replaced in January, 1936, by a diagnostic laboratory for venereal diseases, under the direction of Dr. Rigney D'Aunoy. During the past year, 798 patients were examined in this new clinic. The following routine has proved very successful:

A history of previous venereal infections and present lesions is obtained from each patient with special emphasis on the establishment of an infectious intercourse. A careful description of the present lesions is made, after which the patient is submitted to a series of laboratory tests. The plan of a strict routine for these tests was soon abandoned as considerable time was wasted and very little important information gathered by a series of negative tests. In each case the tests are outlined according to the clinical impression and only when there are negative results are further tests made. Smears taken with a cotton applicator from the surface of the lesion or with a scraping knife from the depth of the lesion are stained according to the Gram-Wright and Fontana methods to demonstrate bacterial flora, the type of cell and the presence of spirochetes. A dark field examination is made from each ulcerated lesion. If the microscopic examination of the stained smears proves too confusing, a culture of the lesion is made in brain broth, blood agar and anerobic media. Animal innoculations have proved of little use and are only made when a filtrable virus is suspected as the cause of the lesion (lymphogranuloma inguinale or herpes genitalis). The puncture of regional buboes has been very successful for isolating the organism in pure culture, and *Treponema pallida* is demonstrable in the bubo when local treatment has brought about its disappearance in the primary chancre. For the recognition of specific immunity in the organism we use the complement fixation tests for syphilis and gonorrhea and the diagnostic skin tests for lymphogranuloma inguinale and chancroidal infections. In the evaluation of these tests, however, it must be remembered that the results are positive only when a certain period of time has elapsed after the primary infection and that they often remain positive for a long time after the lesions themselves have disappeared. Therefore, a careful history of previous venereal infections is necessary in securing accurate results. We have tried the Formol-gel reaction of the blood serum, recommended by McIntosh, as specific for granuloma inguinale, and have discarded it as entirely unsatisfactory. A biopsy should be taken in every case in which the lesion has been present for several months or years, as well as in cases of extensive lesions when biopsy does not noticeably add to the mutilation of the patient. Histopathologic examination of the lesion will usually give very definite conclusions and a bacterial stain (Gram or Levaditi) opens the possibility of the determination of the pathogenic organism in the depth of the lesion. Since the danger of malignant changes is always an important consideration in chronic lesions, a biopsy is often a preventive or precautionary measure and has quite frequently revealed to us the presence of an early malignancy.

From the patient's chart, on which are recorded the clinical data and the tests, the etiologic diagnosis of the venereal lesion is made. Sometimes this is a matter of simple deduction but often it is practically impossible to make a correct diagnosis. The presence of several etiologic factors is often discovered and symptomatic treatment of the patient for each disease is of great benefit to the lesion. The diagnosis of multiple venereal infections is extremely difficult clinically because of the consistent predominance of one infection. In such cases laboratory tests are of inestimable value. Once the diagnosis as to the probable etiology of the lesion is made in our clinic the patient is referred back to the hospital for treatment and his chart is kept in the diagnostic clinic for further reference. In many cases part of the examination remains incomplete as the patients often do not return to the clinic for the reading of the skin tests, and in such cases we cannot make a diagnosis. In our statistics for the first year, 25 per cent of the total number fell in this group. It is hoped that the value of an exact diagnosis in the control of venereal lesions will be realized by the treating physicians and that their cooperation in referring those patients who return for treatment to our clinic will decrease the number of incomplete examinations. A complete survey of our results is recorded in Table I.

TABLE I

| | Type of Infection | White | | Colored | | Total | |
|---|---|---|---|---|---|---|---|
| | | M. | F. | M. | F. | No. | Per cent |
| I. | Syphilis | 24 | 6 | 57 | 14 | 101 | 16.1 |
| | Chancroid | 21 | 15 | 90 | 26 | 152 | 24.3 |
| | Lymphogranuloma inguinale | 15 | 8 | 99 | 33 | 155 | 24.8 |
| | Granuloma inguinale | 4 | 1 | 17 | 11 | 33 | 5.4 |
| | Vincent's ulcer | 8 | 5 | 15 | 9 | 37 | 5.9 |
| II. | Non-venereal infections | 9 | 11 | 30 | 18 | 78 | 12.4 |
| III. | Undetermined lesions | 11 | 4 | 34 | 17 | 66 | 10.5 |
| | Total number of patients | 102 | 50 | 342 | 128 | 622 | |

Group I comprises diseases which are customarily classified as venereal diseases (Stannus). We have had no experience with gonorrheal granuloma or other manifestations of gonococcal infections because these cases are readily diagnosed and are not referred to our clinic. Group II includes all cases in which a definite non-venereal etiologic factor could be detected by examination. Group III represents the cases in which the presence of a venereal disease could be deduced but the true etiologic factor could not be demonstrated. We shall discuss briefly the important diagnostic features of each group.

### SYPHILIS

Syphilis, the most widely publicised cause of venereal lesions, has been responsible in only 101 cases, or in 16.1 per cent, for the pudendal lesions observed in our clinic during 1936. Thirty syphilitic lesions, or 48 per cent, were observed in white patients; 61 or 52 per cent in colored. The ratio between male and female was four to one in both races, a rather significant factor in explaining the spread of the disease by apparently healthy females. Most of the syphilitic lesions were types of the primary chancre which is too well known to the readers to discuss at length. Suffice it to say that the induration around the comparatively painless ulceration, the characteristic brown reddish color of the indurated area, the absence of a large amount of pus and the presence of small indolent firm glands in both inguinal regions, form criteria for the clinical diagnosis, although a diagnosis of syphilis is never made without substantiation from the laboratory. Examination of a smear taken from fresh serous exudate obtained by simultaneously squeezing the indurated area and scraping rather deeply into the bottom of the ulcer, under the dark field, demonstrates the *Treponema pallida* as a slender spirilla, 4 to 20 microns in length with close and regular turns in the spiral and vivid motility (Goldhorn). In older lesions or those that have been treated with various "healing powders", the treponema loses its motility and can be recognized only with difficulty. With antiluetic therapy it disappears rapidly from the surface and only repeated and deep scrapings will produce a few organisms (Culpepper). If the glands are enlarged, the treponema can usually be found in aspiration material from the luetic bubo when it has already disappeared from the primary lesion. Since it is often desirable to preserve the proof of the diagnosis, a smear is stained with the silver impregnation method of Fontana, giving a picture similar to Levaditi's tissue impregnation. We agree with Culpepper that the demonstration of the treponema is the only positive proof of a primary luetic affection, without which the diagnosis should not be made. The blood Wassermann reaction is usually negative. Late manifestations of systemic syphilis on the pudenda have been observed in only 17 cases, most of them (14) belonging to the secondary stage of the infection. In such cases, the Wassermann reaction and the biopsy are of great importance while the search for the treponema will usually remain fruitless. The proliferation of the endothelial cells, the perivascular round cell infiltration and the appearance of giant cells are very characteristic of this stage and can be easily recognized even in small biopsies. The deposit of brown pigment is rather characteristic of the lesions in secondary syphilis.

### SOFT CHANCRE

During 1936, 152 cases of proved chancroidal infection were diagnosed in our clinic. Thirty-six, or 23 per cent, occurred in white patients; 116, or 77 per cent, in colored patients. The proportion according to sex was three to one in preference of the male sex. Although the clinical picture of the soft chancre in its typical form is easily recognizable, the variations are so great that every case presents individual peculiarities. The principal clinical features of this infection are painful ulcerations on the skin or mucous membranes of the genitalia, which are of irregular contour, often multiple and covered with a rather copious purulent exudate. In the male the inguinal glands are always affected and show a painful swelling with erythema of the overlying skin and occasional fluctuation. As a rule constitutional symptoms are absent. The course of the ulcerations depends largely upon the cleanliness of the patient and the development of secondary infections which cause mutilating ulcerations of long duration, extensively involving and destroying portions of the genitalia and resisting all therapy. The laboratory diagnosis in pure cases of chancroidal infection can be made in two different ways: the demonstration of the causative organisms in the lesion or the regionary lymph glands, and the diagnosis of the specific immunity of the organism to the disease by the specific skin reaction. The *Streptobacillus* of Unna-Ducrey, which is the causative agent of this disease, is often present in large numbers in the smear from the primary lesion or in material from a swollen bubo. These bacilli are Gram-negative, rather thick and short, slightly curved rods which are inclined to form arrangements of chain-like groups. According to Hunt the bacillus can be cultivated on blood agar with reduction of the oxygen tension. We have found it in 126 cases (82 per cent) and only in cases of long duration with marked secondary infection have we failed to discover it. In such cases, the specific skin reaction developed by Ito van Reenstierna and Demelcos was of great diagnostic value. As antigen, a heat killed emulsion of *Streptobacillus*, cultivated according to the description by Sanderson, was used successfully and we found the reaction highly specific and very sensitive. A more extensive report of our experience with this diagnostic skin test will be given in a later publication. Biopsies taken from the more extensive lesions offer little assistance in diagnosing but may be helpful in the recognition of malignant changes which sometimes occur in chronic phagedenic ulcers.

### LYMPHOGRANULOMA INGUINALE

In 155 cases the virus of lymphogranuloma inguinale was proved as the etiologic factor of a pudendal lesion. Only 23, or 14.8 per cent, belonged to the white race; 132, or 85.2 per cent, were negroes. There were 41 female and 114 male patients. The lesions of the pudenda observed in lymphogranuloma inguinale represent different stages in this disease. The primary lesion with the typical inguinal buboes was more predominant in the male sex while the later manifesations of the disease, elephantiasis and esthiomene of the pudenda, were more common in the female. For a thorough description of the lesion as observed in New Orleans we refer the reader to earlier studies by von Haam and Lichenstein. The early manifestations present a rather typical clinical picture which is characterized by the regular appearance of severe constitutional symptoms, fever and headaches, while the clinical diagnosis of the later stages of the disease, especially in the female, is often extremely difficult. The laboratory has developed two very reliable means of diagnosing lymphogranuloma inguinale: the demonstration of the virus in the diseased tissues and the specific skin reaction of Frei. It is possible to isolate the virus by intracerebral injection of filtered or bacteria free tissue emulsion into white mice where it produces a typical meningoencephalitis which can be readily transmitted to other animals (Hellerstroem and Wassen). The aseptically excised or punctured bubo of the acute stage of the disease is the best material from which the virus can be isolated. The chronic lesions also contain demonstrable virus (Ravaut, Levaditi, Lambling and Cachera). The skin reaction indicates a stage of acquired hypersensitivity against the disease and remains positive for the greater part of the patient's life. As antigen, sterile pus emulsion of human buboes or brain emulsions of infected monkeys or mice are used with equal diagnostic value (D'Aunoy and von Haam). Grace and Suskind emphasize the high degree of permanent specificity of standardized mouse brain antigen, while Howard and Strauss experienced false positive reaction with old antigen. Our own experience leads us to agree with the New York workers. In order to avoid mistakes in reading the reaction a control injection with normal mouse brain emulsion is absolutely necessary. The biopsy from the acute lesion is rather typical, showing small stellar abscesses in the lymph glands and affected tissues. In esthiomene or elephantiasis of the pudenda it is sometimes difficult to diagnose the disease.

### GRANULOMA INGUINALE

Thirty-three cases of granuloma inguinale or granuloma venereum were observed in our diagnostic venereal clinic during 1936. However, this does not include all cases which came under observation, as in many instances the clinical diagnosis was so obvious that the patient was not referred to our clinic. Five cases were observed in white patients and 24 in colored patients, 23 of these in males and 14 in females. In its typical form with serpiginous ulcers of the inguinal region and the pudenda, this disease does not offer any problems in clinical diagnosis, but the nodular and hypertrophic lesions (Halty) are difficult to differentiate from other venereal granulomas. The peculiar formation of the extensive, firm, pinkish white scars which very frequently become the site of recurrences of the disease (D'Aunoy and von Haam) are characteristic. Severe secondary infection, especially with spirochetes and anerobic bacilli, may produce extensive tissue necrosis with extensive mutilation of the genitalia and the perineum. The most characteristic laboratory finding is the appearance, in the discharge from the lesion, of Donovan bodies in the large mononuclear cells. They represent ovoid or round capsular bodies which stain pink with the Giemsa or Wright stain and show fine dark rod-shaped bacilli or occasionally two small Gram-positive diplococci in the center. However, these typical Donovan bodies are usually found only after repeated and rather deep scraping of the lesion. We believe that the appearance of so-called "plastin bodies", homogeneous round bodies about the size of a red blood corpuscle in the plasma of the large monocytes, and the presence of small rod-like organisms often found in thick bunches in vacuolic spaces of the monocytes are more reliable signs of the disease than the large capsulat bodies described by Donovan. With practice and repeated examination of smears from the suspected cases we have been able to prove the presence of these characteristic intracellular organisms in 70 to 80 per cent of our cases. A still higher percentage was obtained when sections from biopsies were stained with the bacterial stain of Gram (modification for tissues) and examined under oil immersion for the intracellular organisms. They appear to be rather deeply situated in the affected tissues and usually removed from the necrotic surface of the lesion with its abundant secondary pyogenic flora. We have also been successful in making cultures of the organism in Sabouraud media and are now engaged in experimental work, seeking definite proof of the pathologic significance of this organism which is still doubted by such eminent authorities as Manson Bahr. Its diagnostic significance for granuloma inguinale has undoubtedly been established.

### VINCENT'S ULCER OF THE PUDENDA

This term has been chosen to designate certain destructive, ulcerative lesions associated with the presence of Vincent organisms commonly found in Vincent's angina of the mouth. During 1936, 37 cases were observed in our clinic, 13 of which were white and 24 colored. Of these, 14 were female and 23 male. Clinically this lesion presents a very painful, shallow and often multiple ulceration of the skin and mucous membrane of the pudendal region, without buboes, but with an inclination to spread into the deeper layers of the tissue rather than over a wider surface. It must not be confused with the necrotizing membranous vaginitis found in persons with low resistance in which the Vincent organism has been discovered, or with the cases of secondary spirochetal infections resulting from neglected pudendal ulcerations. The lesion is usually covered with greyish white exudate and bleeds easily. According to Arnold it is generally an auto-inoculation of a chronic mouth infection and, in the case of Pilot, the introduction of a foreign body was the cause of the onset of the infection. So far only single cases have been described in the literature. We have observed the lesion to be a well defined clinical entity which can be diagnosed with comparative ease by smear examination. In contrast to secondary spirochetosis, the exudate from a Vincent's ulcer contains comparatively few leukocytes and rarely any other bacterial flora. There are numerous long fusiform organisms, most of them in the "active, positive form" (Wright), and a dense tangled mass of spirochetes, which stain faintly with aniline dyes but which can be excellently demonstrated by Fontana's impregnation method. In the dark field examination the spirochetes show vivid motility and a great variation in the number of curves and the size. The turns in the spiral are not as close and regular as in *Treponema pallidum*. We believe that the presence of these organisms, whose symbiosis is characteristic of the infection, in practically pure culture with only the evidence of liquefaction, necrosis without extensive suppuration is sufficient proof for the diagnosis. The institution of successful symptomatic therapy in our cases seemed to confirm this belief. The presence of spirochetal organisms alone or in association with extensive suppuration associated with a mixed pyogenic flora does not warrant this diagnosis although it is quite frequently observed in extensive granuloma inguinale (D'Aunoy and von Haam). Antispirochetal medication, however, is beneficial to these mixed spirochetal infections of the pudenda, if added to the specific therapy of the lesion.

### NON-VENEREAL INFECTIONS

In 78 cases, or 12.4 per cent, of the venereal lesions an etiologic factor was established which did not fall in the group of recognized venereal diseases. Clinically these lesions showed varying pictures, some consisting of small ulcers or pustules and others being large hypertrophic infected granulomas. The possibility of an infectious intercourse was sometimes admitted, often vigorously denied. One of the most common statements was that of trauma during intercourse which usually left a slightly painful erosion on the skin or on the mucous membrane of the penis or the vulva. Sometimes the use of strong chemicals such as concentrated iodine solution or carbolic acid for preventive purposes could be elicited. Very frequently a phimosis of the prepuce was present. The duration of the lesion was usually short and the patients, 30 white and 48 colored, appeared typically apprehensive of possible contraction of a venereal disease. Our diagnosis in these cases was guided by two principles: first, the exclusion of every possibility of venereal infection and second, the establishment of the causal agent of the lesion. Therefore, the patients were subjected to all known laboratory tests used in the diagnosis of the six venereal diseases and only after every possibility of venereal infection had been excluded, was the search for the causal factor undertaken. Obviously the history of the patient as well as the appearance of the lesion were of great importance, as they were often the only clues for the correct diagnosis that could be obtained. In many cases bacteriologic examination of the lesions through smears and cultural methods revealed pyogenic infections as the source of the lesion and streptococci and more frequently staphylococci and colon bacilli could be isolated from the lesion. Table II contains a list of the various etiologic factors non-venereal in nature which we thought to be principally responsible for this group of pudendal lesions.

TABLE II

| | White | | Colored | | |
|---|---|---|---|---|---|
| Etiologic Factor | Male | Female | Male | Female | Total |
| Spontaneous pyogenic infections | 2 | 1 | 6 | 1 | 10 |
| Traumatic pyogenic infections | 10 | 4 | 13 | 5 | 32 |
| Chemical burns | 3 | 0 | 6 | 1 | 10 |
| Saprophytic infections | 2 | 5 | 2 | 6 | 15 |
| Parasitic infections | 0 | 0 | 1 | 3 | 4 |
| Herpes genitalis | 1 | 0 | 0 | 2 | 3 |
| Carcinoma of penis, vulva | 1 | 1 | 2 | 0 | 4 |
| Total | 19 | 11 | 30 | 18 | 78 |

Post traumatic infections with pyogenic organisms seems to be the most important source for non-specific venereal lesions. Personal uncleanliness can be held responsible for the saprophytic infections and most of the spontaneous pyogenic infections. Chemical burns due to highly concentrated preventive drugs are much more frequently observed in the male than in the female sex and are due principally to lysol solutions of strong concentration. Four cases of malignancies of the pudenda were discovered amongst the venereal lesions referred to our clinic for diagnosis, three early squamous cell carcinoma of the penis and one carcinoma of the vulva with inguinal metastasis which had been diagnosed as "venereal bubo" by the clinician.

## VENEREAL LESIONS OF UNDETERMINED ORIGIN

This puzzling group of pudendal lesions comprises ten per cent of our material. Clinically, these lesions usually represent extensive ulcerative processs with hypertrophic tissue proliferation and marked discharge. The history of the lesion usually reveals that it has been present for several months or years and that various methods of treatment have been tried by various clinics without any success. The course is slow but steadily progressive and finally leads to marked mutilation of the genitalia. All possible laboratory tests for venereal diseases are negative and the examination of the smear shows a mixed bacterial flora with Gram-positive cocci and Gram-negative bacilli predominating. The biopsy shows a chronic pyogenic process with development of a fairly vascular granulation tissue and lack of epithelial regeneration. Although often diagnosed clinically as malignant, there is no histologic evidence of carcinoma, nor have glandular metastases ever been found. An explanation as to the etiology of these lesions is impossible at this time; it would involve too much speculation. The possibility that this group includes a hitherto unknown venereal infection must be kept in mind and the more uncommon types of bacteria such as paratyphoid, diphtheria and the dysentery group should be sought. In two of our cases we considered the findings of yeast cells as etiologically significant and felt that a search should be made for other groups of fungi. Extensive investigative work is necessary for the reduction of this relatively high number of lesions with unknown etiologies and we hope that this frank confession of our weakness will fulfill its purpose and stimulate increased scientific interest in the venereal lesions of occult origin.

### SUMMARY AND CONCLUSION

Six hundred and twenty-two patients with lesions of the pudendal regions were studied with the purpose of determining the exact etiology of each lesion. Exact clinical history and examination of the lesions together with a series of carefully planned and executed laboratory tests in each case permitted the following conclusions:

1. Seventy-six and five-tenths per cent of all pudendal lesions were caused by infections commonly termed as venereal diseases. Chancroidal infection and lymphogranuloma inguinale were the most common etiologic factors recognized in our diagnostic laboratory.

2. One out of every four or five cases with pudendal lesions referred to our diagnostic clinic was definitely caused by some other known or unknown etiologic agent. Pyogenic infections of the traumatized skin or mucous membrane of the genitalia must be regarded as the most frequent cause of the non-specific venereal lesions.

3. In 10.5 per cent of the observed lesions no diagnosis as to the etiology of the lesions could be made, although the known venereal diseases could be considered as the exclusive causal factor.

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### DISCUSSION

Dr. James K. Howles: It is a long step from the time of John Hunter who taught that chancre and chancroid and the lesions of gonorrhea were due to the same cause, which he attributed to a poison, claiming that the type of lesion depended on the type of skin affected. It was a less distant step to the time of Fournier, and it has been a relatively short time since Schaudinn and Hoffman in 1905 proved by dark field examination that *Treponema* pallida was the cause of syphilis. Much of the knowledge that we have today concerning the diagnosis and treatment of syphilis has been acquired within the last thirty years. There is still a great field, as Dr. von Haam emphasized, in the study and determination of venereal lesions. Unfortunately, any lesion on the genitalia is looked upon with some degree of question and the patient goes to a quack or some other than the family physician to determine the cause of it; perhaps the element of conscience enters into it.

I am glad Dr. von Haam emphasized the point of biopsy. I think with the help of the laboratory in the diagnosis of many of these obscure lesions error of 10 per cent will be diminished when biopsy is done, because I believe biopsy is just as important as the bacteriologic examination.

The last is often obscured by previous treatment. In fact, it would not be amiss to institute measures to prohibit the dispensing of drugs to apply to genital lesions because often the diagnosis is missed because of them.

One point not emphasized is the occurrence of venereal lesions in certain cutaneous diseases associated with generalized eruptions; erythema multiform, tuberculosis, and cancer, as these lesions often involve the external genitalia. So in some conditions it is almost impossible to make a diagnosis without biopsy.

Another point of interest in this series is the fact that Dr. von Haam brought out the number of positive dark fields. We know in the primary stage of syphilis, the dark field is the only method of diagnosis so far as the laboratory is concerned. Physical examination, of course, is of aid, but definite diagnosis depends on the dark field examination because the Wassermann is often not positive at this time.

Dr. von Haam's percentage was kept low because of the number treated with arsenicals coming to the out-patient clinic and some who had never come to his laboratory because they have secondary rash which was diagnosable. So perhaps the percentage is a little lower than we would expect.

Another point of interest is that in women frequently no primary lesions are visible. The anatomic structure of women is such that having no pain they are not conscious of having a lesion. If they develop a secondary eruption, or positive serologically, syphilis is diagnosed without their knowledge of the presence of a primary lesion. When it occurs on the cervix it has no characteristics of chancre whatever and appears to be a boggy cervix similar to the cervix of pregnancy.

I think Dr. von Haam's paper will keep us conscious that everything on the genitalia is not always venereal and is not associated in any degree with disgrace or moral laxity.

# MALARIA*
# A SYMPOSIUM

## PLASMODIUM OVALE†

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The presentation of this brief discussion will be kept within the confines of diagnosis, rather than the proof of a new species of malaria plasmodium. At the present time malariologists accept this protozoön as the fourth species of malaria parasites.

*History*: In 1900 Colonel Craig described a plasmodium found in the blood of a soldier returning from the Philippines suffering from tertian malaria paroxysms, which differed so much in its morphology from *P. vivax* (tertian) that he regarded it either as a distinct variety of the latter, or as a strain of *P. vivax* (tertian) on which environmental conditions had modified the morphology, but he did not name it.

In 1914, Ahmed Emin described a similar organism which he named *"P. vivax* var. *minuta"*. In 1922, Stephens described as new, a species of plasmodium observed in a case of malaria contracted in Africa, which he named *P. ovale*. This work has since been confirmed by Stephens and Owen (1926), Yorke and Owen (1930), James, Nicol and Shute (1932), Mühlens (1934) and others. In 1933, Marchoux showed that Emin's *"P. vivax* var. *minuta"* was not identical with *P. ovale* described by James, Nicol and Shute.

*Morphology of Stained Preparations*: The routine thin blood film is stained with Wright's stain in the usual manner and the following differentiating characteristics noted: (Hanging drop or thick films are not suitable.)

1. When *P. ovale* is in the stage of young rings.

At this stage we find that nearly every infected red blood corpuscle is thickly studded with Schüffner's dots, which are quite large and well defined; in P. *vivax* (tertain), if present, Schüffner's dots are sparsely scattered and appear like fine specks.

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*Conducted by the Department of Tropical Medicine at the Hutchinson Memorial Clinic Staff Meeting, April, 1937.

†From the Department of Tropical Medicine, Tulane University.

2. When the parasite is half-grown (with a single nucleus not yet beginning to divide).

At this stage the red blood cell is thickly studded with Schüffner's dots, deeply stained and well defined. Also the margins of many of the infected corpuscles would seem to have been drawn out into more or less ragged points. During this stage the parasite itself markedly resembles a quartan parasite, although it is larger than a quartan and the pigment which it contains is darker.

3. When the nucleus of the parasite has divided into four or more parts.

About 25 per cent of the infected red blood corpuscles at this stage are definitely of oval shape, the parasite itself, however, being round. When the cell of *P. vivax* shows this oval shape the parasite itself is also rounded. During this stage the infected corpuscles may have part of their outline fringed. Here, confusion with *P. malariae* (the organism of quartan infection) may occur because the parasites are about the same size; however, in *P. ovale* the pigment is lighter in color and less coarse.

4. In the stage of complete separation of the merozoites.

The picture at this time is eight merozoites arranged around a central block of pigment in a red blood corpuscle heavily studded with Schüffner's dots. The small number of merozoites differentiate it from *P. vivax* (tertian), and the Schüffner's dots in the corpuscle distinguish it from *P. malariae* (quartan).

5. The sexual forms of the parasite (gametocytes).

The gametocytes of *P. ovale* resemble in morphology those of *P. malariae* (quartan); however, oval red blood cells and the presence of Schüffner's dots make differentiation easy. During this stage it may be difficult to differentiate *P. ovale* from *P. vivax*, and one must rely on the smaller size of the infected red blood corpuscle and its irregular outline.

The stages of development in the mosquito may be briefly summarized as follows:

Up to the eighth or ninth day of growth there are present in the oöcysts two rows of dots crossing each other at right angles.

*Distribution*: Cases of *Plasmodium ovale* have been described from East Africa, West Africa, Belgian Congo, South America and the Philippines. No cases have as yet been reported from the United States.

*Summary*: *P. ovale*, producing symptoms of tertian malaria and resembling both tertian and quartan on miscroscopic examination, has unquestionably been overlooked many times due to hurried examinations. A more critical observation in the microscopical study of malarial infection will undoubtedly lead to a more frequent diagnosis of this species.

# CERTAIN FACTORS IN THE EPIDEMIOLOGY OF MALARIA IN THE SOUTHERN UNITED STATES*

**ERNEST CARROLL FAUST**
New Orleans

Epidemiology concerns the prevalence of disease and the factors influencing or governing this prevalence. While its strict connotation limits its use to the epidemic form of disease, in its broader and more usual sense it also includes the pandemicity and endemicity of disease. In malaria both epidemic and endemic situations prevail. While the former may be the more spectacular, the latter is probably the more important both medically and economically.

Although malaria occurs endemically in certain areas of the United States outside the South, as, for example, in the Connecticut River valley, in central New York State, in New Jersey, in Ohio, Indiana and Illinois and in the irrigated areas of the Southwest, Northwest and California, in none of these localities is malaria the compelling public health problem which it is in our own territory. Climatic conditions in the South favor anopheline mosquito breeding 9 to 12 months of the year and during most of this time the malaria plasmodia are able to develop in the mosquito. Conditions of warmth and moisture are especially necessary for the incubation in the mosquito of the estivo-autumnal parasite, which has its optimum development at a mean average air temperature of 86° F. Thus, north of the Ohio River, estivo-autumnal malaria has never been able to become established and tertian infection is the only type which is able to maintain itself. On the other hand, as one proceeds southward from the freezing zone, and particularly in two extensive areas in the South, both tertian and estivo-autumnal parasites are abundant, while the quartan parasite occurs in very limited foci. These areas are: (1) a long wedge-shaped territory, beginning coastally in South Carolina and extending through Georgia and central Florida; and (2) the overflow-area of the lower Mississippi River, with its immediate tributaries, including southeastern Missouri, and the adjacent regions of Illinois, Kentucky and Tennessee, together with the so-called "delta" area of eastern Arkansas, northeastern Louisiana and western Mississippi. In addition, there are important minor foci in the Red River valley above Alexandria. The entire Gulf Coast area and the southern tip of Florida are much less malarious than the above-mentioned territory. Nevertheless, with the exception of the Appalachian highlands, the entire South as far west as a line drawn north and south through Dallas may be regarded as vast malarious area.

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*From the Department of Tropical Medicine, Tulane University.

What are the factors which predispose for malaria in the South? Temperature and moisture have already been mentioned. In addition there must be a sufficient number of *human carriers* and a sufficient number of the *appropriate species of anopheline mosquitoes.* Without either of these requisites malaria could not be maintained. Certainly in the United States and probably throughout the world, there are no reservoir hosts which can replace either man or anopheline mosquitoes in carrying on the life cycle of the malaria parasite.

In man there are two phases of the life cycle of the malaria plasmodia: (1) the entire asexual phase, which is responsible for clinical symptoms, and (2) the early stages of the sexual stage, the so-called mother sex cells or gametocytes. As long as a patient has only rings and segmenters (i. e. schizonts) in his peripheral blood, he is not a carrier, since these stages of the parasite are digested in the stomach of the mosquito. But when at least one male and one female gametocyte of the proper stage of ripeness are taken up by Madam Anopheline in a blood meal, the cycle has an opportunity to be continued in the mosquito, so that in two weeks or more after such a blood meal the salivary juice of the mosquito may be infective for man.

There are many factors which prevent mosquitoes from becoming infective for man. The gametocytes taken up in the blood meal may be under-ripe or over-ripe or there may be only male or female cells. Or the mosquito may get an overdose of parasites of the appropriate stage and die of the infection. A torrential rain or a dry hot wind may kill the mosquito. Or the wrong type of mosquito may take the blood meal. Finally, man may erect artificial barriers, as screens and mosquito nets, to prevent biting. This preventive is particularly effective at night, since most anopheline mosquitoes are photophobic and bite only between dusk and sun-up. In spite of these handicaps the number of females of the anopheline species which become infected in the South is sufficient to maintain malaria as an important clinical and public health problem. Several years ago Root found that a two per cent infection in anopheline mosquitoes in the limestone sink area in southern Georgia was sufficient to maintain an 85 to 100 per cent parasite rate in the human population of that area.

Five or six different species of anopheline mosquitoes have been found breeding in the South, and, while all of them are good experimental hosts, only one of these has been found to be a good natural transmitter. May I present to you, as the cause of our malaria in the South, *Anopheles quadrimaculatus,* nicknamed "Quad", because of the presence of four distinct dapples or spots on each of its 2 wings? Boyd and Ponton (1933) found that the breeding of this mosquito was closely associated with areas of limestone erosion in South Carolina, Georgia and Florida, and that these were the foci of heaviest endemicity in the southeastern states. Watson and Spain (1937) have made a similar observation in the Tennessee Valley. It is not definitely known whether this condition prevails in the Mississippi "delta", where *A.*

*quadrimaculatus* is the good malaria transmitter, but it seems quite possible.

What about the vital statistics of malaria in the South? Morbidity data are lamentably poor and unreliable, due to the failure of physicians to make accurate diagnoses based on the microscopic identification of the parasite, and to their failure to report cases. It is conservatively estimated that for each death from malaria in the South there are at least 200 cases of the disease. Only the State of Mississippi within recent years has records approaching this ratio. In one state a recent report from the state board of health showed a ratio of only two cases for each death. Although mortality data are not as reliable as could be desired, they constitute our sole gauge for comparing the amount of malaria in different parts of the South and the rise and fall from year to year. The malaria mortality map, which Dr. Dauer and the speaker recently worked out as a five-year average, is almost identical with that of Maxcy for the year 1923, suggesting that malaria is as prevalent in the South today as it was 14 years ago, in spite of the attempts to control it by therapeusis and by larvicidal measures. We have demonstrated that averages by states are not as satisfactory for comparison as they are by counties or by groups of counties; that there is a cyclical ebb and flow of the mortality rate approximately every five years, and that so-called "immunity" or "resistance" to clinical infection develops very rapidly during childhood, possibly due to tolerance to the parasite and probably not due to actual age resistance, but that after middle life this resistance is rapidly lost. At present the mortaity data cannot be analyzed to determine the species of malaria plasmodia primarily responsible for death.

May I suggest that the evident haphazard diagnosis, unscientific treatment and failure to record and report cases of malaria are primarily responsible for the unsatisfactory state of the epidemiology of malaria in the South today, a situation which compares very unfavorably with that in the British colonial possessions in the tropics; and that this condition can be basically remedied only by impressing both undergraduate medical students and postgraduates with the absolute need for accurate laboratory diagnosis, both as regards the presence of malaria plasmodia and the designation of the species, whether tertian, quartan or estivo-autumnal. Not until this has become a routine procedure can state boards of health be persuaded to give serious thought to the task of compiling malaria morbidity statistics. Until reliable morbidity statistics are available, we have no real gauge of the present-day malaria problem in the southern United States.

# THE ROLE OF MALARIA IN GENERAL PARESIS*

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NEW ORLEANS

The use of malaria in the treatment of general paralysis is one of the most interesting chapters of modern medicine, and an excellent example of the use of one malady in the control of another still more serious disease. Within the last twenty years, earlier recognition of various forms of syphilis has led to much clinical and subsequent pathological study of this disorder. Tonight we are limiting ourselves to the use of malaria in the treatment of that form of syphilis known as general paralysis of the insane or more commonly, paresis.

Wassermann, Ehrlich, and Wagner von Jauregg are the pillars upon which a great deal of our yet insecure knowledge of neurosyphilis rests, and from their work has resulted our new clinical and pathologic conception of syphilis. In confining our attention to general paralysis we must credit Noguchi with the first definite evidence that this disorder was not a parasyphilitic lesion but a pure syphilitic lesion. He first found spirochetes in the brain of a patient dying with general paresis.

The discovery in 1917 of the benefits of induced malaria and the hope it justly held out led to renewed interest in the malady. Soon after the introduction of this treatment neuropathologists began to pay especial attention to these cases, and their increased activity during the last ten years has led to exhaustive but conflicting statements both as to the mode of its operation and the histopathologic changes produced.

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It seems to me vitally important that the reasons for the renewed hope of treatment in general paresis by malaria first be stated statistically. To do that clearly one must have reliable figures as to the number of spontaneous remissions occurring in this disease without the use of malaria. As is so common in medical literature, it is frequently the obvious that is hard to find. Only four reliable statements as to the incidence of spontaneous remissions in general paresis were obtainable. They were as follows: James Collier stated that in his experience 11 per cent had spontaneous remission. In a detailed study of cases at the Boston State Hospital, Loman gave the incidence of spontaneous remissions as 9-11 per cent. In Europe, Pellacani stated it was 5-11 per cent; while in the Scandanavian countries Raynor in a series of one thousand and four cases, from whom antisyphilitic treatment had been rigidly excluded, found that only 3.5 per cent had spontaneous remission in general paresis. These four sources become increasingly important when we consider that they will have to serve in the future as the base line with which artifically produced remission can be compared statistically, for it is obvious that the tendency now is, as it should be, to treat all cases of general paresis.

Contrasting these figures with those obtained by induced malaria, the following workers will be considered because, in my opinion, their work was well controlled and their cases were sufficient in number to allow us to draw conclusions.

The percentage of remission obtained with malaria by workers beginning with Wagner von Jauregg and including those of our present day while varying between 25 per cent and 68 per cent, greatly exceeds the incidence of spontaneous remissions.

It is only fair at this point to comment on recent attempts to treat general paresis by methods other than malaria, such as typhoid, sulphur in oil, diathermy, hot air, and by other mechanical means as well as tryparasmide.

To illustrate the percentages of remissions obtained by other methods than malaria, typhoid for example produced remission in 74 per cent, while the hot bath produced remission in only 19 per cent. All have their respective champions but there is as yet no unanimity of opinion as regards their advantage over the malarial treatment. Nevertheless, the striking improvement in general paresis treated by malaria arouses one's curiosity as to what has occurred, and we ask ourselves what does malaria do and how is it reflected in the brains of general paralytics. Various conclusions have been drawn but we must first review in brief what happens in the brain of a person developing paresis.

Consider first the reaction of the outstanding histopathologic features of a typical case untreated by malaria. There is: (1) an ectodermal reaction, which consists of (a) degenerative changes of the nerve cells and fibers of the cerebral cortex, especially of the frontal region; (b) proliferation of the cortical neuroglia, particularly of the subpial fibrous neuroglia in the gray matter. There is also (2) a mesodermal reaction, consisting of (a) infiltration of wandering cells producing perivascular infiltration of the cortical vessels and meninges; (b) the blood vessels themselves show changes of an obliterative endarteritis, and (c) the microglia, representative of the reticulo-endothelial system in the brain, reacts in a characteristic manner with the formation of rod cells. These align themselves in a typical manner and act as "scavengers". They were first described by Nissl and Accushan. Spielmeyer emphasized them as characteristic in syphilis of the central nervous system. Their chief function is the scavenging of an iron pigment, probably hemosiderin. These cells take a Prussian blue reaction and then are practically pathognomonic of general paresis in the absence of hemorrhage, trypanosomiasis, and one or two other very rare conditions. Recent work by Alexander at the Boston City Hospital with a micro-incineration method has revealed many other unknown forms of iron in the brain which have as yet not been defined. Hayashi, Lubarsche and Spatz, and Metz were among the first to point out the Prussian blue reaction and to describe its significance. This is a quick method of demonstrating general paresis in the brain. This leads us to the logical question: What does malaria do to the brain of the general paretic? The first work referred to by nearly all the students of the subject is that of Straussler and Koskinas on material from the Vienna clinic. From then on only reports of larger series will be considered by us, as scattered single cases do not give the views of the authors as to the probable mode of operation.

Straussler and Koskinas studied seven patients dying with general paresis. Four of these died during treatment or directly after, while three patients died in remission from other causes. They found that in the brains of the patients dying during treatment, infiltration and proliferative changes in the vessels and glia were most marked. The meninges were infiltrated heavily. In the three patients dying during a remission, there was surprisingly little change. The cortical architecture was little disturbed, and there was slight infiltration and glia proliferation.

In 1925 they studied thirty-one additional cases, and concluded from their work that in malarial treatment there is first an exacerbation of all inflammation, which then recedes producing the clinical remission. They later extended their conception to include a qualitative change, believing that following malaria treatment, the reaction changed to a more benign granulomatous form, namely a gumma. But, it is important to know that they only found two cases of gummatous lues in all their cases.

In 1925 Kirchbaum studied twenty-two cases. Some died early in the treatment or within the first two weeks. The second group died after a month of treatment or more. They found that in cases dying early there were moderately severe paretic changes, while in the cases dying much later after the treatment the changes were quite slight. They found no evidence of a qualitative change to a gummatous form.

In 1926 Gurewitch studied twelve cases. Four died within three weeks of treatment and showed severe general paralytic changes in the brain. In eight cases dying three weeks to eight months after treatment, changes in the brain were only moderately severe as far as the cortex was concerned, and three had marked infiltration of the striatum. It is this latter involvement that probably is manifested clinically in the tremors of the paretics.

Nakamura in 1926 drew the same conclusion from his work. In 1927 Freeman confirmed the findings of Straussler and Koskinas and made similar deductions. The same year, Lehoczky studied eleven cases, and differed from the above investigators in feeling that treatment did not produce exacerbation of general paralytic changes, but consisted in a gradual reduction of the intensity of the inflammatory reaction.

One of the most interesting and complete studies was that of Richard Wilson, who studied thirty-eight cases of clinical paresis confirmed histologically in Jacob's clinic in Hamburg. It is worth while going into some detail with his work. These cases died as follows:

1. Seven cases during treatment;
2. Six cases 4-14 days after treatment;
3. Three cases 3-6 weeks after treatment;
4. Five cases 3-5 months after treatment;
5. Four cases 6-9 months after treatment;
6. Ten cases 1-2½ years after treatment;
7. Three cases 3-5 years after treatment.

From careful study of these brains representing a series chronologically arranged in respect to treatment, he was able to show that there was first a general exacerbation, the inflammatory reaction reaching its height three-six weeks after treatment followed by a steady, rather rapid decrease to remission.

In 1929 Ferraro added twenty-nine cases and confirmed Wilson's observations. He also studied the effect of malaria on the normal brain and found only swelling of the endothelium of the blood vessels.

Subsequently Geary in 1930, and Stern in 1932 also supported Wilson's conclusions from a study of their material.

We can now picture the histologic happenings in the paretic brain being treated by malaria. In essence, it consists of a temporary increase of the inflammatory reaction first described followed by a moderately rapid decrease of the mesodermal reaction. It is important to emphasize that the ectodermal reaction is not affected, that is, the nerve cells and fibers once destroyed are not regenerated.

This leads us to the next interesting question. What happens to the spirochetes when treated and untreated cases are compared?

The figures reveal that spirochetes disappear early after the institution of the treatment.

How are spirochetes killed? There are several means:

1. They are destroyed by high temperature;
2. The microglia actually phagocytize the spirochetes;
3. Spirochetes are washed into the subarachnoid space by the swelling and edema associated with high temperature.

Ferraro feels that the effect is first on the spirochetes by the malaria. These being killed, the inflammatory exudate is absorbed as it is no longer needed. Microglia also diminish for the same reason, but the ectodermal processes are not affected. These conclusions accord with the pathologists at the National Hospital in London.

Freeman concurs in this view. Kubies' explanation, namely that the spirochetes are washed into the subarachnoid space by the current of fluid around perivascular channels, has little probability since spirochetes are not found in the spinal fluid.

It seems to me that the primary effect of malaria is to destroy the spirochete. In the presence of large numbers of dead spirochtes, the inflammatory reaction is increased, the microglia are increased as they are needed for the scavenging of the dead spirochete, and as the curve of spirochetes steadily diminishes, the reaction, no longer needed or stimulated, disappears. It leaves behind it slight traces of the "workmen" but persistent evidence of the blight which had struck the ectodermal tissue, namely the neurone.

There are complex sidelights which appear as yet quite unexplainable, that have been noted during the course of these studies. For example, why are the manifestations of syphilis more pronounced elsewhere in the body in successfully treated paretic cases? It seems that the disappearance of the spirochete from the brain is associated with an increase of their activity elsewhere. It is valueless to speculate upon the cause at present. Also, the basal ganglia, except the pallidum, are nearly always involved in the general paretic process.

The lesson that I have learned from this study is that the crux of success or failure in the treatment of general paralysis by malaria is to get them early. Solomon of Boston repeatedly has emphasized this since 1925.

Destruction of spirochetes constitutes the starting point for the recession of the inflammatory exudate. There is no further increase in mesodermal reaction, and the ectodermal reaction persists.

We must get them early, for as Monrad-Krohn has said, "The killing off of no matter how many spirochetes does not recreate one single neurone that has once been destroyed."

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# THE MODERN TREATMENT OF MALARIA*

CHARLES F. CRAIG, M. D.
NEW ORLEANS

The introduction of new drugs for use in malarial therapy and of new data and theories regarding the best methods of treatment has made the modern treatment of malaria a subject of great importance to the practicing physician and one regarding which there is much misunderstanding and confusion of ideas. Quinine, so long regarded as the only specific for malarial infections, is recognized at the present time as of little value in prophylaxis, in that it does not prevent infection when administered in prophylactic doses but simply maintains the infection below the symptomatic level. Quinine is also defective because of its variable action upon different strains and species of the malaria plasmodia; in its failure in preventing relapses in a large proportion of the infections in which it is exhibited in the usual manner; and in its lack of effect upon the gametocytes, thus failing to sterilize the carriers of the malaria plasmodia. For these reasons chemotherapists have searched diligently for remedies that might prove more powerful in one or more of these particulars, and in the modern treatment of malaria three drugs are available, i.e. quinine, plasmochin and atabrine.

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As regards plasmochin, it may at once be stated that, while this drug destroys the human life-cycle forms, or schizonts, of the tertian and quartan malaria plasmodia, it does not destroy those of sub-tertian, or estivo-autumnal malaria. However, it does destroy the forms intended to undergo development in the mosquito (the gametocytes) of all the species of plasmodia occurring in man, thus sterilizing the carriers of malaria. Accordingly, this drug should not be used *alone* in the treatment of malaria but only in conjunction with quinine or atabrine in those patients having gametocytes in their blood, in order to prevent the infection of the mosquito and the transmission of malaria.

Quinine is a specific drug, which, if properly employed, will eliminate malarial infection in the vast majority of cases. Unfortunately, in order to do so, it must be taken for long periods of time in rather large doses, and the average patient fails to complete the entire course of treatment and relapses occur very frequently. As a routine treatment with quinine for the average malarial infection, that recommended by the National Malaria Committee, of which Dean Bass was Chairman, has given satisfactory results when conscientiously followed. This treatment is as follows: For the acute malaria attack 0.65 gm. (10 grains) of quinine sulphate by mouth, three times a day, for a period of at least three to four days, or until the acute symptoms have disappeared, after which 0.65 gm. (10 grains) is administered every night for a period of eight weeks. For patients presenting no acute symptoms the latter part of the treatment alone is essential. The doses for children are proportionate.

In pernicious malarial infections the intravenous administration of quinine, in the form of the dihydrochloride, is believed to be still the best treatment, although both plasmochin and atabrine have been so employed in such cases with apparently good results.

In all infections in which gametocytes are present, quinine treatment should be supplemented with plasmochin for the purpose of destroying these forms and thus rendering the patients non-infective to mosquitoes. In fact, in every malarial infection it would be good practice to administer plasmochin in doses of 0.01 gm. (1/6 grain) three time a day in adults for five or six days after the acute symptoms have been controlled with quinine, the latter drug being continued in the recommended dosage. Toxic symptoms, as abdominal colic, severe headache, cyanosis and respiratory failure have been observed following the administration of plasmochin but not when it has been given in the small dosage required to kill gametocytes and recommended above.

In the treatment of carriers of malaria, to rid them of gametocytes, plasmochin is still without a peer but it should be combined with either quinine or atabrine and used only in the small doses recommended. For the treatment of carriers a combination of quinine and plasmochin, known as chinoplasmin, is available and efficient. It may be procured in tablet form, each tablet containing 0.005 gm. (1/12 grain) of plasmochin and 0.15 gm. (2.5 grains) of quinine, the dose for adults being two tablets three to four times a day for eight to ten days, the results being checked by blood examinations. In most infections gametocytes will have disappeared from the blood by the end of these periods but if not, the course of treatment may be repeated. It should always be remembered that if acute malarial infections be properly treated carriers will not develop, as the gametocytes apparently originate from the human life cycle forms, or schizonts, and if these are all destroyed it follows that gametocytes cannot be produced.

Atabrine, a quinolin derivative, has been widely used in the treatment of malaria, and it is certainly the concensus of opinion of those who have had the most extended experience with this drug, that it is the most rapidly curative one we possess and that relapses are much less frequent after its administration than after the administration of quinine. It is supplied in tablets each containing 0.1 gm. (1.5 grain) and the dose for adults is one tablet three times a day for five successive days; for children one to four years of age, one-half tablet two times a day for five days; for children four to eight years of age, one tablet two times a day for five days; and for older children the dose is the same as for adults. In relapsing cases the treatment may be continued for seven days.

This drug kills the schizonts of all strains and species of human malaria plasmodia but does not kill the gametocytes of the estivo-autumnal plasmodia and to accomplish this it is necessary to combine it with plasmochin, the latter drug being used in the same dosage as when combined with quinine. As some authorities state that the mixture of these drugs is apt to give rise to toxic symptoms, it is believed that it would be preferable to wait for two weeks after the completion of the atabrine treatment and then give plasmochin alone, if gametocytes be then present.

While atabrine has been recommended for intravenous administration in pernicious malaria, a special preparation being available for such administration, it is believed that quinine dihydrochloride should be the drug of choice in such cases if it can be used. Atabrine musonate, a preparation devised for intramuscular injection, is still in the experimental stage as opinions regarding its use vary widely.

Toxic symptoms have been reported following the administration of atabrine, as abdominal colic, nausea or vomiting, headache and other nervous symptoms, as mania, delirium, melancholia and evanescent mental confusion. The nervous symptoms which have been reported are the most important but they have almost invariably occurred when the drug has been administered in larger dosage than recommended or to individuals having a history of psychoses or nervous disorders. A fair and unprejudiced review of the literature has convinced me that the prevalent opinion that atabrine produces mental derangement in many patients is not based upon fact but very largely upon "hearsay" evidence, but that it is true that this drug should not be administered to patients having a psychotic history or in larger doses than those which have been found efficient and usually recommended. The lemon yellow color of the skin that may follow the administration of atabrine is not a toxic symptom but is due to a deposition of the dye in the skin, which eventually disappears. It is not a jaundice nor does it indicate any disturbance of the liver, as thought by many practitioners.

It should be remembered that atabrine is a cumulative drug and is very slowly eliminated, so that if it is given in too large doses over too long a period of time, toxic symptoms may be expected, but employed in the manner recommended I have observed no serious toxic symptoms following its use.

The method of treatment of malaria recommended by the Health Section of the League of Nations demands some consideration. The Section recommended that quinine be given only to control the symptoms of the acute attack, after which the drug should be stopped and relapses allowed to occur, controlling the acute symptoms of each relapse with quinine. This method of treatment is based upon the well-known fact that repeated attacks of malaria produced by the same strain of plasmodium result in an immunity to infection with that particular strain. The treatment of the symptomatic attack does not kill all of the plasmodia, those remaining multiplying until they produce another symptomatic attack. Some immunity is acquired during the quiescent period, this being added to after each relapse, until a permanent immunity is acquired. This method of treatment, although theoretically sound, would be practically impossible in many instances and, in the case of estivo-autumnal malaria, in which there is always the danger of the development of pernicious attacks, it might be followed by very serious results.

In conclusion, I believe that for mass treatment, where those treated cannot be personally observed, quinine should be the drug of choice, but where the treatment can be supervised, and case selection can be made, atabrine should be employed. This drug should also be used in treating those having an idiosyncrasy to quinine and in the treatment of hemoglobinuric fever, while plasmochin should be administered as recommended in order to kill gametocytes and thus prevent the infection of mosquitoes and the transmission of malaria.

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## THE NEW OFFICERS

At the meeting of the State Medical Society held in Monroe the last of April, one of the important duties of the House of Delegates was the selection of officers for the incoming year. That the House of Delegates acted wisely and sagaciously may be appreciated by their selection of the group of men who will represent the best in Louisiana medicine next year.

For President-elect, Dr. Joseph A. O'Hara, of New Orleans, was the unanimous choice of the House. Dr. O'Hara needs no introduction to the medical profession of the State, nor of the country. As the active, directing head of the State Board of Health he has labored conscientiously and faithfully for the advancement of health conditions in the state. On account of governmental aid the State Board of Health has probably had more income to spend than at any time in its history. No one can deny this money has been well spent and has done much to advance health conditions throughout the state. Dr. O'Hara is not only a man of obtainments in his special field, recognized by his selection as Professor of Medicine and Public Health in the Louisiana State University Medical School, but he is a most cordial, likable and popular individual. Under his guidance the State Society should prosper.

To Dr. Walter Moss, one of our active hosts last year in Lake Charles, goes the honor of being selected as First Vice-President. Dr. Moss, for some years one of the surgical house officers in the Charity Hospital, is an outstanding figure in his special field, surgery.

Dr. A. W. Martin, one of the well known eye, ear, nose and throat specialists in his section of the state, Bogalusa, was selected for Second Vice-President. The Third Vice-Presidency fell to the lot of Dr. L. J. Bienvenu of Opelousas. One of the younger men in medicine in the state, Dr. Bienvenu has taken an active interest in organized medicine since his graduation from Tulane in 1921.

The Speaker of the House of Delegates, officially Chairman, again this coming year will be Dr. King Rand of Alexandria. Dr. Rand proved himself to be a capable and fair and unprejudiced presiding officer and well merited re-election. To Dr. Val Fuchs of New Orleans fell the Vice-Chairmancy of the House of Delegates. Both of these two men are well acquainted with parliamentary law and are presiding officers of force.

Dr. J. Q. Graves of Monroe, was elected delegate to the American Medical Association to serve two years. Dr. Graves' wide acquaintance with members of the House of Delegates of the A. M. A. and his knowledge of Louisiana affairs make him an excellent representative of Louisiana medicine. Dr. J. B. Vaughan of Monroe was elected as alternate to the A. M. A. for two years. Should anything happen to Dr. Graves, which we earnestly hope will not, then Dr. Vaughan is well equipped to act in his place.

Three of the Councilors were re-elected: Dr. C. C. DeGravelles of New Iberia, from the Third District; Dr. Rhett C. McMahon of Baton Rouge as Councilor for the Sixth District and Dr. Claude A. Martin, of Welsh, Councilor for the Seventh District. These men have fulfilled their duties diligently and faithfully. That they well deserve re-election was appreciated by members of the House of Delegates. Dr. W. J. Couvillon of Marksville was selected to represent the Eighth District as Councilor. A polished and sincere gentleman of French extraction, the new Councilor for the Eighth District will make a splendid representative for his section of the state.

## THE CONDITION OF OUR SOCIETY

Elsewhere in the Journal the report of the President, of the Secretary-Treasurer, and of the House of Delegates to the General Assembly will be found. These recount in detail the condition of the Louisiana State Medical Society as of the last of April. There are a few data there which might well be accentuated. In the first place the membership has increased about a hundred in comparison to the previous year. This is not taking into account the men who applied for membership in 1937. The State Medical Society has in its membership list a goodly proportion of the eligible doctors of the state, but there is still room for those members of the profession who have not joined with the rest of their profession for the purposes of enhancing their professional knowledge, of getting together with other medical men, of dealing with the problems of economic medicine and of protecting themselves against malpractice suits. These are but a few of the advantages in joining the Society. If the non-members who are eligible for membership could be seen and talked to personally by members of the State Society, in other words if each member of the organization would take it upon himself to increase the membership, undoubtedly many of the men not belonging now would join with us.

It will be noted in the Secretary-Treasurer's report that the finances of the Society are in excellent shape. The organization has total assets of over $26,000. Last year the receipts were over $10,000 as contrasted with slightly under $11,000 in 1935. The expenditures for the past year have seen somewhat reduced. The accumulation of funds is most certainly not the chief purpose of a medical organization, nevertheless a healthy surplus does allow for contingencies which may arise and it is good to have a substantial financial back-log. Perhaps it might be well to spend some of the accumulated profts in advancing the cause of the Society. As a concrete example, the President is called upon to make many visits to constituent organizations. Furthermore, he has to undergo certain expenses in conjunction with the annual meeting. Perhaps it would be the part of justice to allow a small expense account to the president.

The annual meeting was most decidedly a success. Dr. Milam, and members of his Committee, were most assiduous in looking out for the comforts and pleasures of their guests. The social aspects of the meeting were delightful, perhaps too much so because at times the attendance at scientific sessions was so small as almost to be an affront to the essayist. Of course the scientific presentations will appear in this Journal and may be read at leisure by the physician. Such is always the intention of those who miss the scientific papers, to read them later, but often this is not done. Furthermore, the advantages of the discussion are lacking. Our membership might be a bit more attentive to the scientific sessions than they were at Monroe, without losing much of the social and friendly features of the annual meeting.

Many of the details of running of the State Medical Society are in the hands of special Committees, of which there is not an inconsiderable number as may be noticed in the Committees reporting through the House of Delegates in its report to the General Assembly. Many of these Committees have an extremely large amount of work to do during the course of the year. They work conscientiously and faithfully for the most part. All credit should be given to the Chairmen of the Committees and their associates in the performance of what often is time-consuming, but very necessary work for the welfare of the organization. To these Committee men go few honors but to them belongs much of the credit for the advancement of the organization.

## PRONTYLIN

The appearance of a new drug which is enthusiastically recommended by the first people to make discovery is usually followed by a wave of enthusiasm which strikes the whole medical profession and promptly there appears a host of articles lauding the preparation. Further studies of such drugs, however, usually show, after the first ardor for the preparation, that its use is limited, that it may be of value only in a few cases, and that furthermore modifications in the methods of administration must be put into effect to get the full value of the substance. Such has been the history of innumerable drugs. Even salvarsan, when first introduced, was supposed to be able to sterilize in one dose.

Prontylin, para-aminobenzene sulphonamide and its liquid equivalent prontosil, have recently received a tremendous amount of attention in the press and in open discussion. Reports are coming through, for the most part verbally, of the astounding cures that have been effected in all types of coccic infections with this azo-sulphonamide derivative.

It is interesting to note that this drug, discovered by a German chemist, has very little effect on bacteria in vitro. It remained for some English physicians to grasp the significance of the discovery of prontylin and to apply it to clinical cases. Now it is being used extremely widely.

At the recent meeting of the American College of Physicians, Long and Bliss, in a restrained report, pointed out the really remarkable results that they obtained in treating a group of patients with hemolytic streptococcic infections. Their study was conservative and well controlled. Their clinical observations definitely indicated the value of the new preparation. In conversation with physicians at several medical meetings, they have recounted the splendid effects that have been obtained in other types of coccal infections, as for example in erysipelas, in meningitis both streptococcic and meningococcic, and in scarlet fever. Patients with streptococci sore throat react, in a manner which is astounding, to the administration of prontylin, two 5 grain tablets three to four times a day. In more severe types of streptococcic infection the dosage must be increased.

Last week *Time* had a rather long account of the results obtained in the treatment of gonorrhea with prontylin, brand name sulfanilamide. Results obtained at Hopkins University in the Department of Urology are indisputable. They have seen a very large number of patients with acute gonorrheal urethritis in whom, four days following the administration of prontylin by mouth the discharge ceased and the patients were apparently cured. Some few patients fail to respond to this treatment for some as yet inexplicable reason. If continued use shows the drug works in this sensational way in the treatment of gonorrhea, a real advance will be made in the therapy of the condition. Without doubt after the appearance of this article in the lay press the laity will be self-administering prontylin to cure their infection. Trouble is bound to occur sooner or later. Prontylin contains benzene and benzene may produce extremely severe bone marrow reactions or even cause death from aplastic anemia if administered over a considerable period of time, or if given to a particularly susceptible individual. We predict reports will appear in the near future in the medical press concerning patients who, to their detriment, have taken the drug without proper medical advice.

# HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

## J. T. NIX CLINIC

NEW ORLEANS

At the meeting held in May, 1937, Doctor J. A. LaNasa presented the following paper:

### THE SYMPTOMATOLOGY AND DIAGNOSIS OF URETERAL STRICTURE

The ureter, which conveys the urine from the kidney to the bladder, is a tube, expanded and irregularly branched above, but narrow and of irregular calibre below, as shown by the following table.

| Location | Diameter | Size Catheter or Bougie |
|---|---|---|
| Ureteropelvic junction | 2 mm. | 6 French |
| Lumbar spindle | 10 mm. | 30 French |
| At iliac crossing | 4 mm. | 12 French |
| Pelvic spindle | 4—6 mm. | 12—18 French |
| Juxtavesical | 1—5 mm. | 3—15 French |
| Intramural | 3—4 mm. | 9—12 French |

At its origin in the renal sinus it consists of a number of short tubes, usually eight or nine, called calyces minores, each of which embraces a renal papilla, or occasionally two papillae may be connected with a single calyx. These calyces minores open directly or by means of short intermediate tubes into two short passages, the superior and inferior calyces majores, which in turn unite after a longer or shorter course to form the pelvis. Occasionally a third or middle calyx major is present.

Few subjects in urology have been as actively debated during the past few years as ureteral stricture. There is still much difference of opinion as to the frequency of the condition. However, there is a general agreement, not only in respect to their occurrence but that many clinical symptoms can be ascribed to the existence of ureteral strictures. The time has arrived when a search for their presence is an indispensable portion of a thorough examination of the upper urinary tract, but however, one must be cognizant of the variations of the normal ureter before any conclusions as to the presence of a stricture are drawn.

One of the most suggestive points in the diagnosis of ureteral stricture is the tendency for the symptoms to recur after an interval of complete freedom. In the majority of cases of cystitis, whether tuberculous or non-tuberculous, the bladder symptoms are more or less constant by day and night. The intermittency in ureteral stricture cases is variable. One patient has all of her symptoms at night, while another is troubled only in the daytime. Many of the latter have most of their discomfort early in the morning. After an hour or two of frequent painful voiding, the patient becomes more comfortable. There may be an interval of days, weeks or months with complete cessation of symptoms or only comparative comfort.

The frequency and burning on urination which are the principal complaints vary greatly in intensity. In some there is only slight frequency without any burning, while in others, both of these symptoms become so marked that they are the chief complaints. The character of the pain associated with ureteral stricture has a wide range of intensity and is variable in type. Colicky pain resembling in its severity, location and radiation that due to calculi is the most frequent type. The pain may be quite mild and resemble that of a chronic appendicitis. Many of the cases of ureteral stricture are referred to the urologist after an appendectomy has failed to give relief. The most common location of the pain is in the respective lower abdominal quadrant just a little lateral to the midline. Many complain of backache and the lower abdominal pain may also radiate upward towards the corresponding kidney region.

The diagnosis of ureteral stricture is based on the data obtained from the clinical history, the essential points of which have been outlined above and from the results of a thorough urologic study.

The urologic study should begin with a complete urinalysis which may be most helpful in the diagnosis; at times very suggestive and quite often most misleading. In a large percentage of stricture cases, there is a chronic pyelonephritis on one or both sides and the urine will give characteristic findings, while in approximately one-third of the cases the urine is completely negative. We note from the above statement that the urine, as is true of so many other urologic conditions, presents no pathognomonic features.

A great deal of stress has been placed upon the fact that the kidney above a stricture is usually but not always tender, even when the kidney is not palpable. Palpation of the ureter where it crosses the pelvic brim practically always elicits tenderness in stricture patients. The area of greatest tenderness is elicited on palpation of the ureter in the broad ligament region.

Of all the methods employed in the diagnosis of ureteral stricture the most important is that of ureteropyelography. A filling defect or a marked narrowing with abrupt proximal dilatation, either of which persists over a period of fifteen minutes, may be regarded as typical of ureteral stricture. Failure completely to distend the ureter with the opaque media used may act as a pitfall in the interpretation of the ureteropyelogram and for this reason every case of suspected ureteral stricture should be subjected to a second cystoscopic examination for confirmation or rejection of the findings of the previous sitting.

## HUTCHINSON MEMORIAL CLINIC

Scientific Session: conducted by the Department of Obstetrics, Dr. E. L. King, presiding.

Report of Work of the Obstetrical Department, September, 1932, through December, 1936 (Dr. E. L. King, Department of Obstetrics): We wish to submit a report of the Obstetric Department from September, 1932, through December, 1936. These figures are self-explanatory, and I feel are an expression of the value of adequate prenatal care and the proper obstetrical care during delivery. Both fetal and maternal mortality rates are verv low, being much below the average for the country and particularly below the average for the State of Louisiana. As shown by one of the slides, our maternal mortality for Louisiana averages about seven per 1000 for the white and 12 per 1000 for the colored population. Eliminating the death from typhoid fever, which certainly cannot be charged to obstetrical mortality, we have five deaths in 1736 cases. The fetal rate is also gratifyingly low, and it can be noted that many of the deaths are due to prematurity as some of the babies were dead before delivery started, and that only in a few instances birth trauma can be responsible for the loss of the children. It is to be noted that there was no death due to hemorrhage, toxemia and infection, which are the three main causes of maternal mortality.

The full-time members of the staff who are charged with the management of these patients, and attend the deliveries in the homes, are to be particularly commended for their unflagging interest and zeal. To them goes the chief credit for the satisfactory showing.

Presentation of a Case of Hemiplegia Complicating Pregnancy (Dr. H. Weinberg, Department of Obstetrics): The patient, Mrs. O., is a 34-year old multipara, gravida eight, para seven. The past history is irrelevant, except as regards the obstetrical history. In 1923 Mrs. O. delivered a stillborn child, following a breech presentation. The third and fourth pregnancies and labors were normal. In 1932 she delivered another stillborn infant. She states that two weeks prior to this labor she had a severe attack of influenza. In 1934 Mrs. O. again became pregnant. The pregnancy and labor were apparently normal, as was the puerperium. She was up and about on the ninth postpartal day. On the tenth day she went to bed feeling well. During the night she suffered what was apparently an attack of paralysis. Her husband was unable to arouse her from her sleep, and called he doctor, who said that Mrs. O. was suffering from a "blood clot" in the brain. This paralysis involved her entire left side.

On close questioning we find that in 1924 Mrs. O. had some involvement of her left fore finger, so that it trembled slightly when she attempted to use it. A little later in the year, the whole left hand was involved, so that she could not use it, but this condition cleared before the birth of her second child. From time to time, this

### STATISTICAL REPORT OF OBSTETRIC DEPARTMENT SEPTEMBER, 1932—DECEMBER, 1936

| | |
|---|---|
| Total number of cases during this period | 1,736 |
| Hutchinson Memorial Out Patient Service | 1,373 |
| Hutchinson Memorial colored cases in homes | 217 |
| Touro deliveries | 146 |
| | 1,736 |

Table I—Termination

| | |
|---|---|
| Spontaneous deliveries | 1,044 |
| Forceps | 91 |
| Manual rotation of head | 6 |
| Version and extraction | 7 |
| Cesarean section | 3 |
| Abortions | 26 |
| Incomplete cases | 196 |
| Total | 1,373 |

Table II—Prenatal

| | |
|---|---|
| Syphilis | 13 |
| Secondary anemia | 159 |
| Cardiac | 3 |
| Toxemia of pregnancy | 23 |
| Nephritis | 17 |
| Malaria | 1 |
| Epilepsy | 1 |
| Cystitis | 5 |
| Pyelitis | 2 |

Table III—Intrapartal complications

| | |
|---|---|
| Placenta praevia | 1 |
| Abruptio placenta | 1 |
| Eclampsia | 1 |
| Bronchopneumonia | 1 |
| Postpartal hemorrhage | 3 |

Table IV—Postpartal complications

| | |
|---|---|
| Mastitis | 2 |
| Breast abscess | 1 |
| Puerperal sepsis | 1 |
| Cystitis | 1 |
| Febrile puerperium | 22 |

Table V—Maternal Mortality

| | |
|---|---|
| Pernicious vomiting | 1 |
| Typhoid fever | 1 |
| Pulmonary embolism | 1 |
| Ruptured uterus | 1 |
| Pyelonephritis and pneumonia | 1 |

Table VI—Fetal Mortality

| | |
|---|---|
| Prematurity | 6 |
| Antepartum death | 5 |
| Premature separation of placenta | 1 |
| Prolapsed cord | 3 |
| Intracranial injuries | 1 |
| Stillbirths | 5 |

(Neonatal and intrapartum)

trembling and weakness recurred, finally involving the entire left arm, the left side of neck and face. This paralysis persisted for about five months, after which time she regained partial use of her left arm. In 1934 the last attack occurred, ten days after the birth of her child. She was in a semicomatose condition for four days, but was conscious enough after this time to nurse her baby and take care of its immediate needs.

The family history is negative. The family is long lived on both sides.

The physical examination on admission to the Hutchinson Memorial Clinic showed a lagging of the left side of the body, particularly in the left arm and hand, atrophy of the muscles of the left arm and leg with the left foot turned inward at about a thirty-degree angle. The reflexes were exaggerated on the left side of the body. In addition there was a murmur over the mitral area of the heart. Mrs. O. was referred to the Department of Medicine where the above findings were corroborated. An electrocardiagram showed definite evidence of myocardial disease.

The laboratory tests were negative, including the Wassermann, urine and blood.

Mrs. O., in spite of the above pathology, progressed well until she was eight and a half months pregnant, at which time she developed edema of the lower extremities, dyspnea and rales in her lungs. She was referred to Touro Infirmary, where the above findings were again confirmed. After a week's rest in bed, it was felt that she was well enough to stand an operation. On March 24, 1937, a cesarean section was done under local anesthesia; at the same time the patient was sterilized. She was delivered of a living full term, male child. The puerperium was uneventful.

I am asking Dr. Golden to discuss this case for you in relation to the patient's neurologic findings.

Dr. L. A. Golden, Division of Psychiatry, Department of Medicine: The patient presents us with a very interesting and timely neurologic problem. I say timely, since the probable anatomical lesion is situated in a disputed area of cerebral localization. Within the past few years, Fulton and his collaborators at Yale have studied the effects of experimental lesions in the premotor and motor regions of the brain in chimpanzees. While their description of a premotor and also a pure cortical motor syndrome has been challenged by F. M. R. Walshe and others, this patient is interesting, since the probable site of the lesion involves these most recent experiments in cerebral localization.

Reduced to bare facts, this is a case of repeated monoplegic paralyses initiated by twitchings in the life index finger. The attacks have occurred over a period of ten years, each lasting about six weeks, and clearing entirely between attacks. After five repeated attacks, each involving a little more of the shoulder, neck or face, a final hemiplegia of the left side of the body occurred two years ago, from which which she has never entirely recovered.

Neurologically she shows, in brief, a left hemiplegia exclusive of the face, with exaggerated reflexes and a positive Babinski on that side. But there are findings that remove this from the ordinary hemiplegia. It is flaccid, not spastic. There are no sensory changes whatsoever. There is a marked grasp reflex, or more accurately tonic innervation on stretching the flexors of the fingers on the left. The left lower extremity is flaccid in spite of increased jerks and a positive Babinski. In addition, the patient volunteers that after her first episode she found difficulty in throwing objecs with her left hand, for her fingers would involuntary close on the object which she attempted to throw. This is an interesting subjective description of tonic innervation. Her left hand, you note, is held in moderate flexion and her elbow moderately flexed. On moving her fingers, we note increased tone confined to the fingers, that portion of the hand employed in the most skillful activities of man.

Interpreting our clinical findings, we must place the lesion above the capsule, since the rigidity is confined only to muscles involved in the most skillful movements, a finding characteristic of pure cortical lesions. The presence of tonic innervation indicates that the lesion also involves fibers from the premoter area. A lesion which would catch pure motor and premotor fibers must be located in the centrum ovale just beneath the junction of the motor and premotor regions.

What is the nature of the lesion? The duration of the history, the complete remissions, and the absence of pressure signs fairly well rule out a tumor. Repeated thromboses extending over ten years in the same individual, free from lues, are not common. The entire story, however, fits the conception of repeated leaking of a small cerebral aneurysm, with its typical irritative phenomena, ending finally in a larger leak producing the hemiplegia. In favor of this diagnosis is also the gradually enlarging focal involvement with complete recessions after each attack, the age of the patient, and her survival from the last attack. Also, many of these attacks occurred during or after the increased burden placed on all cerebral vessels during pregnancy.

I present this as an unusual case of congenital aneurysm of a branch of the left anterior cerebral artery with repeated leaking into the medullary substance of the centrum ovale, just beneath the premotor and motor regions of the frontal lobe.

Report of a Two-Headed Monster (Dr. Z. J. Romeo, Department of Obstetrics): Monstrosities of fetal development are worthy of note because of their rarity from the standpoint of diagnosis. They occur about 600 times in 100,000 pregnancies. Two headed monsters only occur once in several such series. The case to be reported here is of special interest because it is one of the very few two-headed monsters capable of viability. Ambroise Pare reported one viable case and Bessie also reported a case of a Bavarian beggar girl in 1541 who was two headed and who had lived at least to the age of 26. In many of the cases reported the heads are fused rather than separated.

Mrs. V., para six, gravida seven, was seen in the Tulane Charity Hospital Clinic. She was 36, and her expected date of confinement was April 25. Her last pregnancy was ten years ago. All labors and pregnancies were normal.

She was admitted in labor on April 22, with two fingers' dilatation, and no toxic symptoms. Vaginal examination gave the impression of a very large presenting head. Under morphine and nembutal analgesia, the patient gradually reached complete dilatation. A rush roentgen ray plate showed "twins" with one head deep in the pelvis.

After twenty-hour hours of labor mid-forceps were applied to the presenting head with a diagnosis of a posterior position. Fetal heart tones were perceptible at this time. Repeated attempts to rotate the head were void of success. A tentative diagnosis of interlocked twins was made. It was thought advisable to perform a craniotomy and decapitation of the presenting head in order to save the second "twin." After this was done examination now definitely revealed a monstrosity. With traction on the presenting arm, and a cephalic hook on the presenting head, the remainder of the fetus was delivered. The placenta was exceptionally large, but otherwise normal. There was no postpartal hemorrhage. A third degree laceration was repaired with chromic catgut and silkworm sutures. The patient had an uneventful convalescence and left the hospital on the twelfth day. The temperature rose to 101° on the second day, and then dropped to normal.

Autopsy of the fetus revealed two heads, well formed, with slight flattening of one head. One well formed heart was found. There was one trachea from each head that opened into respective lungs, and one esophagus from each oral cavity entered into a normal intestinal tract. There were one liver and two gall bladders emptying into a common cystic duct. There were two pancreatic glands, one set of kidneys and one set of normal male genitals.

There is no question as to the possibility of viability of this fetus. The heart tones were heard at the onset of delivery, and the autopsy revealed well developed organs. Had an elective cesarean section been performed, this monstrosity would have possibly lived, barring undue complications.

## NORTH LOUISIANA SANITARIUM

The North Louisiana Sanitarium Staff meeting was called to order on April 23, 1937, with 21 members present. After disposal of routine business, attention was turned to the scientific program.

Dr. Youman presented a case report of staghorn calculus of the left kidney that was removed by a nephrostomy. On subsequent examination, a piece of the calculus was found to have been left in the kidney. Frequent observations at definite intervals showed that the stone was passing down the ureter and subsequently passed out entirely. The case was presented to show the difficulties in the removal of large renal stones and the importance of postoperative observation and conservative treatment.

Drs. Herold and Stewart then reported a case of malignant melanoma of the scalp which had metastasized throughout the body. Dr. Mathews had observed the patient at Charity Hospital some time previously and had demonstrated melanoma growth. His slides and the material obtained from autopsy by Dr. Herold were discussed by Dr. Mathews.

H. M. Trifon, M. D., Sec.

## THE SHREVEPORT EYE, EAR, NOSE AND THROAT SOCIETY

The Shreveport Eye, Ear, Nose and Throat Society met in regular session at the Charity Hospital, the evening of Monday, April 5, 1937 at 7:30 o'clock. The president, Dr. L. W. Gorton, presided. The following members were present: Drs. L. W. Gorton, T. D. Boaz, John L. Scales, Claude LaRue, W. L. Atkins and J. A. Wilkinson, of Shreveport; Captains Burns and Corliss of Barksdale Field and Dr. R. R. Kirkpatrick of Texarkana, Arkansas.

Captain Burns presented a young white man who had sustained an injury of the right orbit. A pine limb had penetrated the orbit at the inferior nasal quadrant, a piece of which broke off and remained in the wound. Captain Burns removed the stick with forceps and left the wound open for drainage. At this time the wound is completely healed; the eyeball moves freely in all directions and the vision in 20/15. The stick, a small piece of pine limb covered with bark, was also displayed. It was about the size of a lead pencil and about one inch in length.

Dr. Scales presented two cataract cases in colored patients. The first was one on which he had done a cataract extraction with an uneventful recovery. Vision when first refracted was practically normal, since then the vision has gradually dropped without any apparent reason. The second case was a bilateral cataract in a colored woman, 35 years of age. This being rather young for a senile cataract, the history and physical condition were closely scrutinized for a possible cause. None was found. Doctor Scales had operated on one eye, meaning to do a preliminary iridectomy, only, but on making the incision the cataract was found to be soft and welled up into the anterior chamber, portions of it escaping spontaneously through the incision. The anterior chamber was then irrigated. The entire cataract washed out leaving a clear pupil. Dr. Scales presented a third case, glaucoma, which was typical in every respect and was shown only as a matter of interest.

Dr. LaRue presented a white man with failing vision due to optic atrophy with slightly increased tension, accompanied by temporal hemianopsia. The question in this case was whether this was a true glaucoma or whether there was some retrobulbar disease causing the condition seen in the eye.

Dr. Boaz presented a young negro man who had a penetrating foreign body of the eye, accompanied by iritis with adhesions and central opacity of the lens. The iris refused to dilate for two or three days, then under the influence of three per cent atropine dilated regularly and freely, leaving a distinct ring on the anterior capsule of the lens at the point of its former attachment. There was confusion at first because an effort was made to attribute the pronounced symptoms of iritis to an injury which had existed less than twenty-four hours. This was explained by the laboratory report of a 4 plus Kahn, indicating that the iritis existed before the injury.

At the conclusion of the scientific program the society went into an executive session for the election of officers. The following were duly elected to serve for the ensuing year. President, Dr. J. A. Wilkinson, Vice-President, Dr. R. R. Kirkpatrick, Secretary-Treasurer, Dr. W. L. Atkins.

W. L. Atkins, M. D., Sec.

## ST. JOHN HOSPITAL

### LAFAYETTE

The regular monthly staff meeting of the St. John Hospital was held in the hospital Tuesday, May 4, at 7:00 p. m. This meeting was devoted entirely to the discussion of medical problems encountered by the general practitioner. Preliminary to the discussion, a film entitled "Malaria" was shown, following which a report of malaria encountered in the various sections of this district was given by the physicians present.

Dr. J. W. Dupuis of Youngsville, Louisiana, reported that, for a number of years, his section of the country had been almost entirely free of malarial infection. Last year, however, quite a number of cases were observed, these being of the tertian and estivo-autumnal types. This year, there has been a rather alarming increase of malaria in that section of the parish.

Dr. W. J. Yongue reported that quite a number of cases of malaria was observed in patients residing in the Atchafalaya River basin.

Dr. E. E. Guilbeau reported on drainage conditions existing throughout the parish, with a plea that drainage problems, as carried out by the C. C. C. Camp, be continued.

A general discussion as to the methods of treatment and results obtained was then carried out by those present.

O. P. Daly, M. D.

## MERCY HOSPITAL

The May meeting of Mercy Hospital Staff was called to order by the Chairman, Dr. John Dicks, and the mortality investigation taken up. Several interesting cases were discussed and followed by the feature speaker of the evening, Dr. P. C. DeVerges, who spoke on lung abscess with an interesting case report which will be published in an approaching issue of the Journal.

## HOTEL DIEU

The regular monthly meeting of the Staff of Hotel Dieu was held in the Nurses' Lecture Room of Hotel Dieu on Monday, April 19, 1937 at 8:00 p.m.

The meeting was called to order by the President, Dr. H. E. Bernadas, and with the Secretary, Dr. J. A. LaNasa, at the deck.

The scientific program consisted of:

a. "Some Interesting Phenomena in Gall Bladder Visualization"—Lantern Slides—Dr. A. L. Levin.

b. "Pathology of the Gall Bladder"—Dr. M. Couret.

c. "Roentgen Ray of the Gall Bladder"—Dr. L. A. Fortier.

These papers were discussed by Drs. Silverman, Salatich, Aleman, Levy and Danna.

## SOUTHERN BAPTIST HOSPITAL

The regular monthly meeting of the clinical staff of the Baptist Hospital was held Tuesday night, May 25, in the staff room, Dr. E. McC. Connely, Chairman, presiding.

Dr. Charles L. Cox presented a case report on diagnosis and early treatment of acute mastoiditis.

Slides were projected upon the screen for demonstration. Various doctors joined in the discussion, and added to the interest of the subject.

Dr. E. A. Ficklen next read a case report on amebic abscess of the liver, with slide projections bringing out many interesting and unusual aspects of this disease. Dr. M. M. Hattaway, in discussing the presentation, told of using lipiodol instillations in the treatment of this case. A general discussion of this report followed.

Dr. O. P. Myers, House-Officer, read the death report for the preceding month.

At the adjournment of the meeting, refreshments were served in the Coffee Shop.

## TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

### CALENDAR

June 1. Eye, Ear, Nose and Throat Staff, 8 p. m.

June 2. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

June 2. Mercy Hospital Staff, 8 p. m.

June 2. Hutchinson Memorial Clinic Staff, 8 p. m.

June 7. Board of Directors of the Orleans Parish Medical Society, 8 p. m.

June 7. Pathologic Conference, Hotel Dieu, 8:15 p. m.

June 9. Touro Infirmary Staff, 8 p. m.

June 11. French Hospital Staff, 8 p. m.

June 14. ORLEANS PARISH MEDICAL SOCIETY, 8 p. m.

June 15. Charity Hospital Medical Staff, 8 p. m.

June 16. Clinicopathologic Conference, Touro Infirmary.

June 16. Charity Hospital Surgical Staff, 8 p. m.

June 17. Eye, Ear, Nose and Throat Club, 8 p. m.

June 18. I. C. R. R. Hospital Staff, 12 noon.

June 21. Hotel Dieu Staff, 8 p. m

June 22. Baptist Hospital Staff, 8 p. m.

June 23. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

June 28. ORLEANS PARISH MEDICAL SOCIETY, 8 P. M. JOINT CLINICAL MEETING AT THE UNITED STATES MARINE HOSPITAL.

June 30. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

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During the month of May, besides the regular meeting of the Board of Directors, the Society held one regular and one special scientific meeting. The meeting scheduled for Monday, May 24 was dispensed with because of the special meeting called.

The following program was presented on May 10:

### SYMPOSIUM ON CORONARY DISEASES

1. The anatomy of coronary system ............ Dr. Beryl Iles Burns
   Demonstration of anatomical specimens ............ Dr. George N. Ronstrom
2. The physiology of the coronary system ............ Dr. Richard Ashman (by invitation)
3. The diagnosis and treatment of coronary diseases ............ Dr. John Herr Musser
4. The surgical aspects of coronary diseases ............ Dr. Alton Ochsner
5. The pathology of coronary diseases ............ Dr. Emmerich von Haam

### EXHIBIT

1. Lesions initiated by coronary diseases.
2. Electrocardiograms.

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The Committee appointed for conducting the Longer Life Week campaign of the Orleans Parish Medical Society chose cancer as the subject for this year's program. This important problem was presented to the community in an intensive program during the week of May 17 to May 22. As in previous Longer Life Week campaigns the public was given appropriate information concerning cancer through the daily press, by radio talks, before luncheon groups, women's clubs, university groups, parent teacher associations, and by posters displayed in prominent places in stores, factories, and public buildings. The druggists were especially shown how they could help. This year the Committee had the cooperation of the clergy.

A special meeting of the Orleans Parish Medical Society devoted to a symposium on malignancy was held Monday, May 17 at 8 p. m. The following ten minute talks were presenated:

1. Grading of tumors ............ Dr. R. J. Schencken (by invitation)
2. Malignancy of the breast ............ Dr. Mims Gage
3. Malignancy of the central nervous system ............ Dr. Gilbert C. Anderson
4. Malignancy of bones ............ Dr. Isidore Cohn
5. Malignancy of skin ............ Dr. James K. Howles
6. Malignancy of the stomach ............ Dr. Urban Maes
7. Malignancy of the colon and the rectum ............ Dr. J. D. Rives
8. Uterine malignancy ............ Dr. Hilliard E. Miller
9. Urologic malignancy ............ Dr. Edgar Burns
10. Radiation therapy in malignancy ............ Dr. M. D. Teitelbaum

Following the symposium, the March of Time sound film on cancer was presented.

The dental profession was asked to participate in the Longer Life Week program this year, because it is felt that the dentists are in a position frequently to recognize and to make appropriate recommendations for treatment of pre-malignant as well as malignant lesions. Through Dr. J. Melville Smith, President of the local dental society, and Dr. Alfred E. Smith, Chairman of the Scientific Essays Committee of the dental society, the following special symposium relating to cancer about the mouth was arranged and presented at the Hutchinson Memorial Building on May 19, at 8 p. m.

1. Early recognition of precancerous lesions about the mouth by the dentist........Dr. J. P. Wahl
2. Pathology of malignancy........Dr. John Lanford
3. Malignancy of tongue and palate........Dr. James T. Nix
4. Malignancy of lips........Dr. Neal Owens
5. Malignancy of tonsils........Dr. Geo. J. Taquino
6. Radiation therapy in malignancy........Drs. Fortier and Gately

Following the completion of this program, the March of Time sound film on cancer was presented.

The Woman's Auxiliary furnished valuable help in distributing posters and material for window displays during Longer Life Week.

The Transportation Advertisers, Incorporated, through their President, Mr. J. Earle Owings, again cooperated with the Orleans Parish Medical Society in displaying car card posters bearing the danger signals of cancer.

Posters used contained the following danger signals:

1. A lump, especially in a woman's breast, that persists longer than it should if due to an injury.

2. A sore that does not heal promptly, particulary about the mouth, the face or the lips.

3. Any unnatural or irregular blood stained discharge from a natural body opening.

4. Persistent indigestion, particularly accompanied by loss of weight.

5. Sudden changes in shape, size, texture, or color of warts and moles. The Longer Life Week Committee is composed of the following members: Dr. Alton Ochsner, Chairman; Dr. Ambrose H. Storck, Dr. John Archinard, Dr. Frederick Boyce, Dr. Emmerich von Haam and Dr. Boni J. DeLaureal.

The following doctors from New Orleans attended the meeting of the American College of Physicians in St. Louis April 19-23, 1937: Drs. J. C. Cole, Edgar Hull, P. H. Jones, L. A. Monte, J. H. Musser and C. J. Tripoli.

Drs. Tripoli and Hull were inducted into full Fellowship of the College.

## TREASURER'S REPORT

| | |
|---|---|
| Actual book balance, 3/31/37 | $3,776.16 |
| April credits | 1,000.89 |
| Total credits | 4,777.05 |
| April expenditures | 958.74 |
| Actual book balance, 4/30/37 | 3,818.31 |

## LIBRARIAN'S REPORT

The Library has loaned to doctors 962 books and journals during April, or almost two to each member of the Society. In addition, 1176 items have been loaned to students for overnight use, making a total of 2138. These figures do not include the great use of books and journals within the Reading Rooms.

During April 48 volumes have been added to the Library. Of these, 5 were received by binding, 12 by purchase, 19 by gift and 13 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is given below.

On request of physicians, members of the staff have collected material on the following subjects during April:

Teeth as a focus in infections of kidney and prostate.

Icthyol as a non-official drug.

Podophyllum in the treatment of warts.

Graham technique for lobectomy.

Deafness resulting from quinine therapy.

Cyanide poisoning—possibility of recovery.

Frederick's treatment of ataxia.

History of investigation of sympathetic nervous system.

Jacksonian epilepsy.

Barbiturates.

Pancreatitis.

Atabrin in treatment of malaria.

Plasmodium ovale.

Relation of menstruation to disease.

Smith-Petersen treatment of fracture of neck of femur.

Aural eczema.

Frontal sinus and its diseases.

Meniere's disease.

Influenzal meningitis.

Swimming—hygiene and hazards.

Brennemann, Joseph, ed.—Practice of Pediatrics, 1937, 4 v.

Maingot, Rodyen, ed.—Post-graduate Surgery, 1936, 2 v.

Golden, Ross, ed.—Diagnostic Roentgenology, 1936.

Mock, H. E., ed.—Principles and Practice of Physical Therapy, 1937, 3 v.

Wiggers, C. J.—Physiology in Health and Disease, 1937.

Connecticut State Medical Society—Transactions, 1934.

American Urological Association — Western Branch—Transactions, 1936.

Hollender, A. R.—Physical Therapeutic Methods in Otolaryngology, 1937.

Israeli, Nathan—Abnormal Personality and Time, 1936.

Miller, W. S.—The Lung, 1936.

Boyd, William—Introduction to Medical Science, 1937.

Brahdy, Leopold, ed.—Trauma and Disease, 1937.

Means, J. H.—The Thyroid, 1937.

Chapin, C. V.—Papers, 1934.

Shands, A. R.—Handbook of Orthopaedic Surgery, 1937.

Titus, Paul—Management of Obstetric Difficulties, 1937.

Koll, I. S.—Medical Urology, 1937.

Hirschman, L. J.—Synopsis of Ano-Rectal Diseases, 1937.

Stone, W. J.—Bright's Disease and Arterial Hypertension, 1936.

Ribeiro, E. B.—Estudios cirurgicas, 1936.

Gilbert C. Anderson, M. D.,
Secretary.

# LOUISIANA STATE MEDICAL SOCIETY NEWS

## REPORTS PRESENTED AT THE ANNUAL MEETING OF THE STATE SOCIETY, MONROE, 1937

### REPORT OF THE PRESIDENT TO THE OFFICERS AND MEMBERS, HOUSE OF DELEGATES

Gentlemen:

The activities of the Executive Officer of the State Society have been neither onerous nor exacting since the Annual Meeting in Lake Charles in April, 1936.

Chronologically speaking, the first important activity was the meeting of the State Legislature. The Committee on Public Policy and Legislation met first on May 16, 1936; again on June 8 and again, in Baton Rouge, on June 15. Thanks to the efficient and untiring efforts of the Chairman, Dr. C. Grenes Cole, and his entire Committee and thanks to the effort and influence of the members of the State Legislature, who are also members of the Louisiana State Medical Society, all legislation which was deemed harmful to the public or the profession or both, was either completely sidetracked in committee or killed without effort in the branches of the Legislature. We should all recognize the splendid attitude of Governor Richard W. Leche in these matters.

In connection with the relation of the Louisiana State Medical Society to legislation, permit me to suggest that best results can be obtained by concerted action rather than divided efforts. To be more specific it is not conducive to best results for Parish Committees on Public Policy and Legislation to act independently of the Public Policy and Legislation Committee of the State Society. I would go so far as to recommend that the House of Delegates issue instructions to Component Societies that all activities of Component Societies with reference to legislative enactments be handled through the State Society Committee on Public Policy and Legislation.

Next in order of importance is the effort of the State Society, made possible by the Louisiana State Board of Health, to conduct postgraduate extension courses in obstetrics in Louisiana. During July 1936 the Louisiana State Board of Health advised the President's office that there were available, through the Social Security Act, certain funds for the purpose of offering teaching in obstetrics throughout Louisiana. A joint meeting of the Committee on Maternal Welfare and the Committee on Medical Education was called on August 3, 1936. Dr. L. A. Masterson of the State Board of Health was invited to this meeting and he presented the project generously offering the State Society the full control of the program of extension teaching. It was thought, at this meeting, that the activities proposed fell under the jurisdiction of the Committee on Medical Education but that since the Committee on Maternal Welfare was so keenly interested, members of this latter could be added for the purpose, to the Committee on Medical Education. Without burdening you with tiresome details, let it be said that lectures were given five consecutive days at the following points: Jennings, Donaldsonville, Natchitoches, New Iberia, Bastrop, Ruston, Minden, Opelousas, Hammond and Baton Rouge. It was reported that these lectures were well attended, were enthusiastically received and that, altogether, this initial adventure suggests that this field of postgraduate education should be vigorously cultivated. Our thanks are due to the Louisiana State Board of Health for its splendid attitude in this important undertaking.

A communication from Dr. Thomas R. Sartor with reference to tonsillectomies for indigents was referred by the office to the Council, which in turn referred this matter to the Executive Committee, which in turn referred it to the House of Delegates. It is suggested that a final disposition of this frequently agitated question be arrived at during this meeting.

Certain citizens in the vicinity of the Bonnet

Carre Spillway, just above New Orleans, wrote to the President of the State Society urging that the lands known as the spillway should be converted into a park to be named the Matas National Park. It was stated in this communication that because of Dr. Matas' outstanding achievements and because of the fact that he was born not far from Bonnet Carre, this would be a fitting tribute to one of the most illustrious members of the medical profession. The Executive Committee considered this communication, looked on it with favor, but instructed the President to learn Dr. Matas' attitude toward the project before final action was taken. Under date of March 25 Dr. Matas wrote, in part, as follows: "Since this matter has been referred to me by the Executive Committee for an expression of my views, I would state:—1. That I gratefully appreciate the compliment that the citizens of my native parish (St. John) and the adjoining parishes wish to convey to me by having this projected park named after me. 2. That I will consider it an added and much appreciated compliment if the Louisiana State Medical Society, through its Executive Committee, will give its approval of the Park project by endorsing it in such terms of appreciation as they may see fit. 3. That, while the Executive Committee of the Louisiana State Medical Society is delighted to give its full endorsement to the project, it behooves the Citizens' Committee of the parishes of St. John and St. Charles to assume the leadership and sponsorship for this movement as the chief beneficiaries of the project should this be realized."

The House of Delegates is urged to endorse this proposal and to lend the aid of organized medicine and, if possible, to enlist the support of the American Medical Association in the consummation of this worthy purpose.

Most of the District Societies were visited during the year and a number of the Parish Societies were good enough to invite the Executive Officer to be present at their meetings. Organized medicine certainly seems to be in a healthy state in Louisiana and some real scientific treats as well as good fellowship were enjoyed at these meetings.

In this connection, since it can not apply to the present incumbent, the suggestion seems appropriate that the State Society consider the advisability of providing a reasonable per diem traveling account for the President. The expenditures incident to the duties of the office are not great and do not work a hardship on the President; however, it would seem that a dignified organization such as the Louisiana State Medical Society would not wish to make it necessary for Executive Officers to spend personal monies in the performance of duties encumbent upon them as Executive Officers.

The agitation for state or socialized medicine has not abated any during the past year. It is surprising to me how many outstanding men in the profession are urging the adoption of government controlled medicine. It is not at all inconceivable that this state of affairs is coming whether the profession wills it as a whole or not. If such a thing can be foreseen I believe, firmly, that it would be a point of wisdom for the medical profession of the United States to approach the government in this matter rather than wait for the government to take control, without the advice and consent of the medical profession. My only object in presenting this sore subject here is to suggest to the Committee on Medical Economics serious study of the volumes just issued by the American Foundation Studies in Government.

Very recently Mr. Carl F. Metzner of the Union Cooperative Insurance Company presented a new plan of group insurance for the State Society which would be based on a minimum of seventy-five percent of the members accepting such a plan. His letter outlining this project is attached to the original of this report. It is hoped that this letter may be referred to the Committee on Insurance, for detailed study.

In conclusion permit me to state that my tenure of office has been a most enjoyable one. There has been not the slightest disagreeableness associated with any of my duties. Dr. P. T. Talbot, Secretary-Treasurer, and his competent assistants, Miss Shoemaker and Miss Simpson, have lent every possible aid with courtesy and willingness.

The meetings of the Executive Committee were well attended and a spirit of cooperation has been exhibited throughout the year which argues well for the advancement of our organization.

Respectfully submitted,
H. W. Kostmayer, M. D., President.

## REPORT OF SECRETARY-TREASURER

To the Officers and Members, House of Delegates,

Gentlemen:

I wish to submit herewith the report of the activities of our office during the past year.

We all enjoyed a wonderful Annual Meeting of the Society at Lake Charles. Not only did we experience a great interest in our scientific program but the hospitality and friendliness of the profession of Calcasieu Parish Medical Society was very outstanding. It was a great privilege and pleasure to hold this meeting and it is felt that the presence of our State organization there will be manifested in an increased interest in medical activity. Registration at the 1936 meeting was as follows:

| | |
|---|---|
| Members | 329 |
| Guests | 50 |
| Exhibitors | 26 |
| Woman's Auxiliary | 114 |
| Total | 519 |

The profession of Calcasieu should be complimented also on the handling of their finances as they were able to return to the State Society $374.82 from their entertainment fund.

During the past year our membership was as follows:

| | |
|---|---|
| Active | 1,274 |
| Honorary | 4 |
| Intern | 51 |
| Members at large | 2 |
| Total | 1,331 |

In 1935 our total membership was 1,237, showing a total increase of about one hundred members in 1936. Up to this time we have received 1,079 active members as compared to 1,023 at the same time in 1936. It might be interesting to state that we have received 80 members in 1937 who were not members in 1936. It is very gratifying to make this report showing such a large membership for 1936 and present indications are that we will exceed these figures in 1937.

Time and again the Secretary has had the occasion to call your attention to the necessity of increasing our membership. It is very apparent that if we can just hold our members from one year to another and then secure additional members, we will without doubt have a healthy increase from year to year in our membership. This has been and should continue to be of great interest to our Councilors and I feel certain that with their timely cooperation, we will keep increasing our number and ultimately secure the 360 doctors in Louisiana who are not yet affiliated with organized medicine.

### FINANCES

In keeping with our increase in membership, it is very gratifying to report, also, a very healthy financial status in our organization. The amounts in the various funds on December 31, 1936 were as follows:

| | |
|---|---|
| General Fund | $10,419.35 |
| Walter Reed Memorial Fund | $ 2,592.76 |
| Medical Defense Fund | $11,396.81 |
| Indigent Physicians' Fund | $ 2,135.33 |
| Cancer Committee Fund | $ 295.77 |
| Total assets | $26,840.02 |

### GENERAL STATEMENT

#### RECEIPTS

| | |
|---|---|
| Dues collected during 1936 | $ 8,349.00 |
| Special receipts | 1,714.86 |
| Total receipts | $10,063.86 |

#### EXPENDITURES

| | |
|---|---|
| Expenditures budgeted | $ 6,890.45 |
| Special expenditures | 1,180.92 |
| Total Expenditures | $ 8,071.37 |

During the past year the Indigent Physicians' Fund reached $2,135.33 and, according to the recent expression of the House of Delegates, there was not deposited to this fund the fifty cents per capita or other amounts except amounts received from the Woman's Auxiliary for this purpose.

The status of the Walter Reed Fund and Cancer Committee Fund will be reported in detail by these Committees. The Medical Defense Committee will submit a financial statement showing the present financial status along with the Medical Defense Fund securities.

It is apparent, if you will review these figures very carefully as reported, that our finances are in a very excellent condition, probably better than at any other time in our existence. With the cooperation of the Budget and Finance Committee, the books for the State Society have been audited by a certified public accountant. This report from the accountant will be filed in our office where anyone wishing to review it may be privileged to do so.

It has been a great privilege during the past year to lend our efforts and activities to assist, along with the Committee on Medical Education and the Committee on Maternal Welfare, in the promotion of extension courses in obstetrics and maternal welfare in the state. We feel that this is a very constructive and progressive step and should be, if properly taken advantage of, a great help in keeping the profession of the state properly informed on pertinent medical subjects. It is hoped that this might result in increasing the character of services rendered by the doctors as well as the material benefit to the public.

Throughout the year there has been a distinct trend of unusual cooperation among the various doctors of the State Medical Society, more so than ever manifested in the past. This will naturally enhance and fortify our medical activities in the future. It is therefore earnestly hoped that these potent factors in medical organization may not only be continued but fortified. I have previously brought to your attention the necessity of a united medical profession in the state in order to meet now or tomorrow the grave problems surrounding the practice of medicine in our country. We should in this way replace the feeling of fear with one of precision and fortitude in order that we may secure, for the doctors of our state, the continued success and happiness in the practice of their profession.

### PARISH AND DISTRICT SOCIETY MEETINGS

During the past year I have visited, with a great deal of pleasure, the following meetings: Second District Medical Society, Third District Medical Society, Fifth District Medical Society, Seventh District Medical Society and the Lafourche Valley Medical Society.

In conducting the affairs of our state organization may I be permitted to state that it has been a wonderful privilege to serve as Secretary the past year during the active administration of our President, Dr. H. W. Kostmayer. He has been most interested in the ordinary affairs of our Society and at the same time has lent his wisdom and influence to the many constructive plans which developed during his administration. I am sure that he has already directed your attention to some of these activities, which, in his modest manner, he might refer to as unimportant. Certainly we will all look back with a great deal of pleasure to his able and faithful administration of the trust bestowed in him.

### ANNUAL MEETING

It has been a great privilege to cooperate with Dr. D. T. Milam, Chairman of the Arrangement Committee for the 1937 meeting, at Monroe. It has been my privilege to make several trips to Monroe in the interest of our approaching meeting and the friendly spirit and timely cooperation manifested by him and the other members of his committees and the profession of Monroe has been outstanding and certainly should result in a most successful meeting this year. The chairmanship of the Arrangement Committee is not any small position and calls for a great deal of judgment, thought, time and devotion in order successfully to perfect the plans for our State Medical Society meetings which from year to year seem to increase in scientific and numerical strength. The Chairmen of the various Scientific Sections are to be congratulated on the wonderful program submitted and I wish to call your attention to the fact that we have six out-of-state guests who will at some time during the meeting address the organization on very timely subjects.

I wish to report also that further opportunity has been given us during the year to continue our cooperation with the Woman's Auxiliary and I wish to assure the members of the Auxiliary that this has been a great privilege. Their usefulness continues to grow and let us hope it may reach their ideals in accomplishing the projects which they may foster for their organization as well as for the benefit of our Society.

### CONCLUSIONS

With the aforementioned report it is very obvious and does not call for repetition on my part to indicate to you the great pleasure it has been to serve you during the past year, as secretary-treasurer. It has been a great privilege to participate in the wonderful cooperation of all of the officers and executives of the State Society all of whom are imbued with a common purpose and desire to help in every way possible in creating a stimulus and interest in our organization. In these accomplishments I have been very glad to participate in a meager way.

Our report would not be complete without expressing our appreciation for the wonderful services rendered by Miss Annie Mae Shoemaker, our assistant secretary and Miss Odile Simpson, who although somewhat new in our midst, has given wonderful indications of developing into a highly efficient and reliable assistant in our office.

Respectfully submitted,
P. T. Talbot, M. D, Sec.-Treas.

## REPORT OF THE HOUSE OF DELEGATES TO THE GENERAL ASSEMBLY

Gentlemen: The first session of the 1937 meeting of the House of Delegates was called to order by the President, Dr. H. W. Kostmayer, at 9:30 a. m., Monday, April 26, 1937. Dr. Kostmayer immediately turned the gavel over to Dr. King Rand, Chairman of the House of Delegates. The first session of the House continued until 5:30 p. m., and the second session was called for 10:00 a. m. Wednesday, April 28, 1937.

Dr. W. W. Bauer, Associate Editor of Hygeia and Director of the Bureau of Health and Public Instruction of the American Medical Association, addressed the House on the subject, "Teaching the Public About Health."

Fraternal Delegates from Texas and Arkansas were present and spoke briefly.

The report of the President was submitted to the House for consideration. Dr. Kostmayer stated in this report that the interests of organized medicine in relation to legislative matters and legislation can best be served by concerted action rather than by divided efforts and asked that all such matters be submitted to the Committee on Public Policy and Legislation of the State Society. He commented most favorably on the activities of the Component Societies and suggested that the President be informed of the time of meetings of these Societies and invited to attend. A letter from Mr. C. F. Metzner of the Union Cooperative Insurance Company, suggesting a new form of group insurance was also included in the President's Report. This was presented and the House decided same should be referred to the Committee on Insurance.

The Secretary-Treasurer presented a report of the activities of his office during the past year and stated that there was an increase of about one hundred members in the Society during 1936. Dr. Talbot stated that the finances of the Society were in a very healthy condition and submitted, attached to his report, a report of the certified public accountant who audited the books for 1935 and 1936. There has been a distinct trend of unusual cooperation among the various doctors of the State Society recently, the Secretary stated, and urged that this spirit be continued and fortified.

Reports were received from the Chairman of the Council and from the Councilors of the various Districts, all of which were received and filed.

The report of the Budget and Finance Committee was submitted by the Chairman of the Committee. The recommendation contained in this report that the By-Laws be amended so that the fifty cents per capita which formerly was placed in the Indigent Physicians' Fund be placed in the Medical Defense Fund until this Fund reaches at least $20,000.00, was approved by the House.

## COMMITTEE REPORTS

The following committees made reports which were received and filed:

Committee on Journal
Committee on Medical Defense
Committee on Medical Education
Committee on Public Policy and Legislation
Committee on Scientific Work
Advisory Committee to Woman's Auxiliary
Committee on Medical Economics
Committee on Mental Health
Committee to Work with the State Board of Health in the Distribution of Arsenicals
Committee on Maternal Welfare
Committee on Pathologists to Collaborate with the State Board of Health in Regard to the Social Security Act

The report of the Committee on Expert Testimony was submitted and the recommendation that minimum fee of $25.00 for expert testimony should be set by the State Society was approved. The recommendation made by the Committee that the House of Delegates appoint a committee to confer with the Bar Association relative to matters of interest to the Association and our Society, was also approved.

The Chairman of the Cancer Committee presented a report of the activities of his Committee and offered the following recommendations:

(1) To reaffirm the activities of the Cancer Committee; (2) to appropriate one hundred dollars ($100.00) for expenses for the year 1937; (3) that the Secretary-Treasurer write a letter to the newspapers in Alexandria, Lake Charles, Shreveport, Benton and Monroe that have published articles on cancer control and to the radio stations in Alexandria, Shreveport, Lake Charles, Monroe and New Orleans that have given time for radio talks on cancer, thanking them for their cooperation. It is also recommended that a letter of thanks be sent by the Secretary-Treasurer to Dr. J. A. O'Hara, President of the Louisiana State Board of Health for the donation of space in the Journal for the publication of monthly articles on the subject of cancer; (4) that the House of Delegates authorize the members of the Cancer Committee and other physicians broadcasting on the subject of cancer to announce their names with the additional statement that the broadcast is made under the auspices of the State Cancer Committee. All the recommendations contained in this report were approved by the House of Delegates.

The report of the Committee on Walter Reed Memorial, requesting that the House of Delegates authorize the Committee to use the amount necessary from the funds on hand for the promotion of this memorial by giving an entertainment under the auspices of the Committee for the purpose of providing more funds, was approved. It was stated by the House, however, that the money to be used should be taken from the Savings Account, only.

The report of the Committee to Prepare the History of the Louisiana State Medical Society was presented and extension of time for the completion of this work granted.

The report of the Committee to Revise the By-Laws in Regard to Medical Defense was submitted. It was decided by the House that the following section should be added to the By-Laws. "Section 17. Be it resolved by the House of Delegates that the defense promised in Chapter 14, shall apply when the suit is brought by the patient, by the nurse or anyone who claims to have been injured by an act of the doctor at the time the doctor was in the actual performance of his professional duty."

The report of the Louisiana State Board of Medical Examiners was presented and received and filed.

A communication from Dr. H. Peddicord, Redwood City, California was read by the Secretary. This was in reference to a bill before the House of Representatives regarding pension for Acting Assistant or Contract Surgeons who served during the Spanish American War. It was decided to approve this bill and communicate with our Representatives concerning same.

A communication in reference to an attempt to place the United States Public Health Service in a new department of the Bureau of Public Welfare was presented. It was decided that the Secretary should send a resolution to Congress and other interested parties, expressing objection to this.

The question of approving the naming of a park near the spillway, the "Matas National Park" was discussed and the House of Delegates approved the project.

It was decided that an annual award should be presented for the best scientific presentation in an effort to intensify interest and create friendly rivalry and competition as suggested by the Secretary to the Executive Committee and to the House of Delegates. The President was requested to appoint a committee to work with the Secretary in the solution of a method for making this award.

A recommendation was made that any surplus over and above the expenses entailed in the conduct of a State convention, except where such a surplus is an unexpended amount furnished by the Louisiana State Medical Society as an entertainment fund, revert to the local society entertaining the convention. This was approved by the House.

The following officers were nominated and duly elected:

Dr. Joseph A. O'Hara, New Orleans—President-elect.

Dr. Walter Moss, Lake Charles—First Vice-President.

Dr. A. W. Martin, Bogalusa—Second Vice-President.

Dr. L. J. Bienvenu, Opelousas—Third Vice-President.

Dr. King Rand, Alexandria—Chairman House of Delegates.

Dr. Val Fuchs, New Orleans—Vice-Chairman House of Delegates.

Dr. J. Q. Graves, Monroe—Delegate to American Medical Association 1938 and 1939.

Dr. J. B. Vaughan, Monroe—Alternate to American Medical Association 1938 and 1939.

Dr. C. C. DeGravelles, New Iberia—Councilor, Third District.

Dr. Rhett G. McMahon, Baton Rouge—Councilor, Sixth District.

Dr. Claude A. Martin, Welsh—Councilor, Seventh District.

Dr. W. F. Couvillion, Marksville—Councilor, Eighth District.

The members of the following committees were re-elected:

Committee on Scientific Work:
  Dr. P. T. Talbot, Chairman
  Dr. A. E. Fossier
  Dr. A. A. Herold
Committee on Public Policy and Legislation:
  Dr. C. Grenes Cole, Chairman
  Dr. Sam Hobson
Dr. Glenn J. Smith
  Dr. P. T. Talbot (Ex-officio)
  Dr. C. M. Horton (Ex-officio)
Committee on Hospitals:
  Dr. J. T. Nix, Chairman
  Dr. J. L. Scales
  Dr. O. P. Daly
  Dr. J. E. Walsworth
  Dr. A. J. Comeaux
Committee on Health and Public Instruction:
  Dr. W. H. Seemann, Chairman
  Dr. F. R. Gomila
  Dr. M. H. Foster
  Dr. J. Q. Graves
  Dr. J. K. Griffith
Committee on Budget and Finance:
  Dr. Frederick L. Fenno

The following new members were elected to serve on committees:

Committee on Medical Defense:
  Dr. S. Chaille Jamison, Chairman
Committee on Journal:
  Dr. Leon J. Menville
  Dr. W. H. Perkins

It was decided that the next place of meeting would be New Orleans.

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## REPORT OF COMMITTEE ON MEDICAL DEFENSE

To the Officers and Members, House of Delegates,

Gentlemen:

As Chairman of the Committee on Medical Defense, I wish to submit the following report:

There have been no new cases brought officially to the attention of the Committee since our last annual meeting, however we know of four cases, three in New Orleans and one in Lake Providence, which have come up. We have received correspondence in reference to these cases and have instructed the doctors in question as to the modis operandi in securing defense but so far have not been asked to assist in the handling of same.

The case against a doctor of Shreveport brought to the attention of our Committee in March 1936 and reported to the House of Delegates at the 1936 session, where it was decided that it should be defended by the State Society, was dismissed in June 1936. The State Society paid, from the general fund, $50.00 for cost of attorney's fee in the defense of this case.

In May 1936 we were advised by Mr. Adams that a case brought against a New Orleans doctor in 1934, and previously reported by the Committee, was settled after trial of about one and one half week. The jury returned a unanimous verdict in favor of the doctor, completely exonerating him of charge of malpractice. The court costs amounting to $38.70 were paid from the Medical Defense Fund.

On October 27, 1936 our counsel advised us that he had been authorized to settle a case brought against a New Orleans doctor in 1933 by compromise.

There has been a great deal of correspondence by the Committee and Mr. Adams in regard to a case referred to our Committee in February 1936 and reported at the last annual meeting, against a doctor in Alexandria; however, trial of this case is still pending.

Respectfully submitted,
Val H. Fuchs, M. D., Chairman.

### SHREVEPORT MEDICAL SOCIETY

The regular meeting of the Shreveport Medical Society was called to order by the President on April 6, 1937 with 38 members and 7 guests present. The minutes of the previous meeting were read and adopted.

Reports: The Treasurer reported a balance on hand of $1490.74. Committees on the applications of Drs. Shavin, Best, Kaminsky and T. A. Hendrick reported favorably.

Scientific Program: Dr. R. B. DeLee presented an interesting and illuminating paper on Macrocytic Anemias, pointing out certain features not only of primary anemia (Addisonian) but mentioning other conditions which give a similar clinical picture. His paper was discussed by Dr. W. S. Kerlin, and Dr. C. R. Mays, who discussed, in particular, the anemia of pregnancy.

Dr. Leon Gray gave a brief discussion of the eye ground appearances in certain blood diseases.

Dr. J. M. Gorton presented a clinical case of atelectasis following a crushing injury of the chest with recovery.

Unfinished Business: The rules were suspended and Drs. H. T. Best, T. A. Hendrick, Dave Kaminsky and J. S. Shavin were elected to membership, the oath being administered by the President to Drs. Shavin and Kaminsky.

New Business: Applications for membership in the Society were received from Drs. W. M. Hall and H. W. Mann and being found in proper order, the Society ordered they take the usual course.

Dr. Crebbin, Chairman of the Public Health and Legislative Committee, introduced the following resolution: 'The Shreveport Medical Society, recognizing the great benefits which have resulted in the community following the diphtheria immunization campaigns conducted during the past two years, hereby goes on record as recommending to the Caddo-Shreveport Health Unit that a similar campaign be conducted this year, and pledges the cooperation of its members in making the campaign a success. The Society also urges the cooperation of all other agencies, organizations and the general public in making the campaign effective. The Society authorizes the Public Health and Legislative Committee and the President to cooperate with Dr. Sandidge in arranging details." This resolution was duly seconded and carried. By vote, the Society decided that any articles submitted by members for publicity during the campaign should be published unsigned.

The question of certain illegal practitioners in the Community was disclssed and, on motion of Dr. Caldwell, duly seconded and carried, the Society instructed the Public Health and Legislative Committee to investigate and to do whatever was necessary to correct this situation.

Dr. Bodenheimer, Historian, requested the cooperaion of members in securing data.

Paul D. Abramson, M. D., Sec.

### SHREVEPORT MEDICAL SOCIETY

The regular meeting of the Shreveport Medical Society was called to order by the President on May 4, 1937, with 77 members and 35 guests present. Because of the nature of the meeting, the routine was altered and business matters were dispensed with first. Minutes of the previous meeting were read and adopted.

Report of Treasurer: The Treasurer reported 128 members with 1937 dues paid and a balance on hand of $1474.97.

Ethics Committee: Dr. J. M. Gorton read the report for the Committee to the effect that the Committee deemed it improper and impractical for the members of the Society to have their names inserted into the directory being compiled by the Shreveport Journal. This motion was adopted. Dr. Gorton then read a second resolution to the effect that the clinics likewise should refrain from advertising. Following amendment by Dr. Webb to the effect that resolutions be interpreted to mean advertising in non-medical publications, this second resolution was likewise adopted.

Special Committees: The Committee on the application of Dr. H. W. Mann reported that they had been unable to complete investigation of Dr. Mann's application and that Dr. Mann had moved from the State. On motion of the Chairman of he Committee, the application was tabled. The Committee on the application of Dr. W. M Hall reported favorably and, on motion of Dr. Winder, duly seconded and carried, the rules were suspended and Dr. Hall was elected to membership by open ballot.

Scientific Program: A very interesting and enlightening Symposium on Malaria was presented. Dr. L. L. Williams, Chief of the Malarial Investigation of the U. S. Public Health Service, presented the principles of a state-wide malarial control plan. Dr W. T. Dawson, Professor of Pharmacology at Texas University, presented the question of chemotherapy in malaria. Dr. G. E. Riley, Assistant Health Officer of Mississippi, briefly discussed the malaria problem in Mississippi. Dr. J. P. Sanders, of Caspiana, discussed the clinical management of malaria.

Paul D. Abramson, M. D., Sec.

## IBERVILLE PARISH MEDICAL SOCIETY

A meeting of the Iberville Parish Medical Society was held April 20, 1937 for the purpose of electing new officers. The president, Dr. E. L. Major, presided.

The following officers were elected to serve for the year 1937:

President: Dr. J. C. Eby, Plaquemine.
Vice-Pres.: Dr. R. J. Spedale, Plaquemine.
Sec-Treas: Dr. W. E. Barker, Jr., Plaquemine.
Delegate: Dr. W. E. Barker, Jr., Plaquemine.
Alternate: Dr. R. J. Spedale, Plaquemine.

The Society is pleased to report one hundred per cent membership.

## TANGIPAHOA PARISH MEDICAL SOCIETY

The Tangipahoa Parish Medical Society held its monthly meeting in Hammond on April 22. The following program was presented:

1. Dr. Eugene Vickery, New Orleans: "The Treatment of Gonorrhea".
2. Dr. T. B. Sellers, New Orleans: "The Treatment of Cervicitis" and "The Diagnosis of Carcinoma of Cervix."

These papers were followed by a general roundtable discussion which proved most interesting and instructive.

The meeting was attended by most of the members of the Society. Visitors present included Dr. Gilbert Anderson and Dr. Sidney Copland, both of New Orleans, who joined in the round-table discussion.

The next meeting of the Society will be on May 20, in Hammond.

L. L. Davidge, M. D., Sec.

## LAFOURCHE VALLEY MEDICAL SOCIETY

The Lafourche Valley Medical Society held its quarterly meeting in Houma, May 26, 1937, at 7:00 p. m.

A short symposium on the eye, ear, nose and throat was given that was of interest and great help to all members.

Dr. J. R. Fernandez presented a paper on "Traumatisms and Some Acute External Eye Conditions," that undoubtedly we confront every day.

Dr. H. Ashton Thomas gave a talk on the "Upper Respiratory Infections" from the standpoint of an ear, nose and throat specialist.

We had planned this meeting to be at Grand Isle, La., however, inasmuch as we are hoping to make our Annual Grand Isle Week-End Meeting more successful than the great meeting of last summer, we thought it best to postpone the date to August 7, 1937. We feel sure that with the ending of a weary and tired hot summer that we all want to be on the open beach to enjoy the wonderful surf in full relaxation that we always find on the lovely Island when ruled by members of the Lafourche Valley Medical Society.

We want our Honorary Members to know that we deeply appreciate their attendance and interest in us, and our efforts are always aimed to please them.

Pat H. Hanley, M. D., Sec.

## TRI-PARISH MEDICAL SOCIETY

The regular meeting of the Tri-Parish Medical Society was held at Oak Grove, West Carroll Parish, on May 4, 1937.

There were present Drs. J. P. Davis, president; G. S. Hopkins, B. C. Abernathy, B. J. Aymond and William H. Hamley, secretary, all of East Carroll Parish; G. W Gaines, past president and dean of the profession in North Louisiana, and E. O. Edgerton of Madison; T. P. Sparks, William K. Evans and Joseph Whitaker from Tensas; D. W. Kelly, W. McG. Dollerhide, E. D. Butler, Fritz LaCour and B. L. Bailey from West Carroll. The Auxiliary members and Drs. N. P. Lyles, Walter W. Poimboeuf and William V. Garnier of Bastrop, Mr. W. H. Childs, inspector for the Parish Health Unit at Lake Providence, and Dr. O. L. Wise of Forest, West Carroll Parish, were guests of the Society.

A paper entitled "Scarlet Fever" was presented by Dr. N. P. Lyles, Director, Morehouse Parish Health Unit, Bastrop. Discussion was entered into by Drs. W. McG. Dollerhide, W. K. Evans, E. O. Edgerton, D. W. Kelly, G. W. Gaines, J. P. Davis, B. L. Bailey and William V. Garnier.

A paper, "Undulant Fever," was read by Dr. Branch J. Aymond, Director, East Carroll Parish Health Unit, Lake Providence. This paper was discussed by Drs. G. S. Hopkins, William H. Hamley, T. P. Sparks, B. C. Abernathy, Walter W. Poimboeuf, Joseph Whitaker and Branch J. Aymond.

Motion pictures were shown by Dr. Branch J. J. Aymond, showing the proper methods of examination of the infant and child and on pulmonary tuberculosis in the child. These pictures were discussed by Dr. Fritz LaCour, Director of the West Carroll Parish Health Unit.

The meeting adjourned to meet at Tallulah on June 1.

William H. Hamley, M. D., Sec.

## MEETING OF AMERICAN COLLEGE OF PHYSICIANS

The following doctors from Louisiana attended the meeting of the American College of Physicians in St. Louis from April 19-23, 1937: Drs. J. C. Cole, Edgar Hull, P. H. Jones, L. A. Monte, J. H. Musser, K. M. Smoot, C. J. Tripoli, and C. H. Blanton of New Orleans; Drs. M. D. Hargrove, A. A. Herold, D. L. Kerlin and J. E. Knighton, Sr., of Shreveport.

Drs. Tripoli and Hull were inducted into full Fellowship of the College.

The Third International Medical Week will be held in Interlaken, Switzerland, August 29 to September 4, 1937. A distinguished group of medical men from most of the European countries are to appear on the program.

## AMERICAN BOARD OF SURGERY ORGANIZED

Representatives from the American Surgical Association, the Surgical Section of the American Medical Association, the American College of Surgeons, the Southern Surgical Association, the Western Surgical Association, the Pacific Coast Surgical Association and the New England Surgical Society have organized for the purpose of certifying as to the qualifications of surgeons throughout the country.

The first examination will be held September 20, 1937. The first part of the examination will be written; part two, clinical, bedside and practical.

Many of the details of the organization of the Board, and some of the data are in the office of the Journal. Requests for booklets of information, application blanks, and other information should be addressed to the Secretary—Dr. J. Stewart Rodman, 225 South 15 Street, Philadelphia, Pennsylvania.

## NEWS ITEMS

Dr. H. W. Kostmayer, Dean of the Graduate School of Medicine, The Tulane University of Louisiana, addressed the meeting of the Mississippi State Medical Association at Meridian, Miss., May 13, 1937, on "Postgraduate Medical Education."

Prof. F. E. LeJeune of the faculty of the Graduate School of Medicine, The Tulane University of Louisiana, was guest speaker at the meeting of the State Medical Association of Texas, held in Fort Worth, May 10 to 13, 1937.

There is an excellent opening for a young man completing his internship who would be interested primarily in internal medicine. Details may be obtained from the office of the Journal.

The American Association for the Study of Goiter will hold its annual meeting in Detroit, Michigan, on June 14-16, 1937. The headquarters will be at the Book-Cadillac Hotel.

The International Health Congress will be held in New York during the World's Fair in 1939.

## VOLUNTARY HOSPITAL INSURANCE PLANS APPROACH 1,000,000 MEMBERS

Voluntary hospital insurance plans, by which workers and their families budget their hospital bills through monthly payments equal to two or three cents a day, reported an enrollment of approximately 900,000 subscribers April 1, 1937, according to a bulletin issued by C. Rufus Rorem, Director of the Committee on Hospital Service, American Hospital Association, Chicago. This is to be compared with an estimated enrollment of 300,000 persons a year ago.

The membership is distributed among 75 different organizations in various parts of the United States, including New York City, Washington, D. C., Chicago, Cleveland, Minneapolis, St. Paul, New Orleans, Sacramento, Buffalo, Rochester, N. Y., Syracuse, Newark, Dallas, Houston, as well as smaller communities in the southern and western states.

## INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the state, which contain the following summarized information: For the fifteenth week of the year, ending April 17, the following diseases were reported in double figures: Fifty-four cases of syphilis, 32 of pneumonia, 27 of pulmonary tuberculosis, 26 of influenza, 18 each of cancer and gonorrhea, 13 each of diphtheria and typhoid fever, 12 each of malaria and scarlet fever, 11 of chickenpox and 10 of whooping cough. The typhoid fever cases this week were scattered widely throughout the state. A case of tularemia was reported from Terrebonne Parish. For the week ending April 24, the number of cases of pneumonia reported jumped to 75. Most of the other diseases decreased in incidence, with the exception of whooping cough. Other diseases in double figures included 27 cases of syphilis, 23 each of pulmonary tuberculosis and hookworm, 22 of gonorrhea, 20 of malaria, 18 of influenza, 16 of cancer, 15 of diphtheria and 13 of scarlet fever. In this week there were reported 5 cases of cerebrospinal meningitis, 2 cases of undulant fever and 1 of tularemia. For the week ending May 1, syphilis increased to 53 cases; pneumonia fell to 50, but influenza jumped to 63. More cases of gonorrhea were reported this week, 46 in all. Likewise, 15 more cases of pulmonary tuberculosis were reported than the previous week (38). There were also reported 25 cases of whooping cough, 22 of cancer, 17 of scarlet fever, 16 of malaria and 15 of diphtheria. Of the unusual diseases, a case of poliomyelitis was reported from St. Helena Parish. During the week ending May 8, there were 66 cases of pulmonary tuberculosis reported to the Bureau of Epidemiology, a very considerable increase in the figure usually reported for this disease. There were also listed 64 cases of syphilis, 45 of pneumonia, 29 of hookworm, 23 of malaria, 22 of scarlet fever, 18 of gonorrhea, 17 of cancer, 16 of influenza and 14 of diphtheria. Of the rare diseases, another case of poliomyelitis was reported from St. Helena. A case of anthrax was discovered in St. Landry Parish and one of undulant fever in Orleans.

### HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census, reports that for the week ending April 10, there were 168 deaths in the city of New Orleans, divided 97 white and 71 negro. This was a slight increase over the preceding week. There were 19 deaths under one year of age. For the following week, ending April 17, the total deaths fell to 156, of which 91 were white and 65 negro. The infant deaths were only 14. For the next week, that of April 24, the deaths had gone back to the figures of two weeks previous, being 168 as a result of 83 deaths in the white race, whereas the figures for the negro race were materially increased to 85. There were 16 deaths in infants. For the week ending May 1, there was a sharp decline in the total deaths listed. Of the 143 deaths reported, 91 were white and 52 negro. There were 8 deaths this week in infants. There was still more reduction for the week ending May 8, when 123 deaths were put on the books of the Bureau of Census. The white population died to the extent of 71 and the negro to 52. Infant deaths were 15 in number.

### WOMAN'S AUXILIARY
### Louisiana State Medical Society
### Convention News

The Woman's Auxiliary to the Louisiana State Medical Society met in Monroe, April 27 and 28, with a total registration of 135. Headquarters for this meeting were in the Virginia Hotel where the Pre-Convention Executive Board meeting was held at 10:30 a. m., April 27, with Mrs. Frederick G. Ellis, First Vice-President, presiding in the absence of Mrs. Vaughan due to illness.

Following this meeting, there was a very delightful luncheon in the Crystal Room of the hotel. The group was addressed by Dr. Hiram W. Kostmayer, President of the State Society, and Dr. Charles M. Horton, President-elect.

Later in the afternoon the guests were taken on several yachts for a ride on the beautiful Ouachita River. A stop was made at "The Pines," the new tuberculosis home being built on top of the hill overlooking the river. After a trip through the buildings, refreshments were served under the pine trees by the young daughters of the hostess Auxiliary. The music by the colored orchestra lent a very colorful air of southern hospitality to this very delightful occasion.

At night, the President's Reception and dance following, gave opportunity again to enjoy the warmth and sincerity of the hostess Auxiliary.

On Wednesday, the General Meeting of the Auxiliary was held at 9:00 a. m. in the Crystal Room of the hotel, Mrs. Ellis again presiding. The usual routine reports were read, accepted and filed. Mrs. Arthur Herold of Shreveport read an interesting report from the Southern Medical Association, of which the two outstanding features are that dues by the State Auxiliaries to the Southern Medical have been discontinued and membership to the Southern Medical is now open to wives, mothers and daughters of doctors.

The new officers for 1937-38 were then elected as follows:

President-elect, Mrs. Frederick G. Ellis, Shreveport.

First Vice-President, Mrs. Joseph P. Brown, Monroe.

Second Vice-President, Mrs. Walter Moss, Lake Charles.

Third Vice-President, Mrs. Robert Bernhard, New Orleans.

Fourth Vice-President, Mrs. E. A. Campbell, Homer.

Recording Secretary, Mrs. William B. Heidorn, Shreveport.

Treasurer, Mrs. Cassius L. Peacock, New Orleans.

Parliamentarian, Mrs. John T. Crebbin, Shreveport.

Corresponding Secretary, Mrs. Aynaud F. Hebert, New Orleans.

Mrs. George D. Feldner, the new President was then introduced by Mrs. Ellis and took over the chair.

This meeting was followed by a luncheon on the roof of the Virginia Hotel. On entering the room, one was held fairly speechless by the dazzling array of gorgeous spring flowers that were so artistically arranged in decorating the tables. A very delightful musical program was rendered which included numbers by two of Monroe's most charming old ladies. This was climaxed by the entrance of "Abbie LaBiche" in the person of Mrs. Blanche A. Olivier, who kept the group in a state of hilarity.

The cordial welcome and friendliness of the Ouachita Auxiliary, and the sincerity and charm of the hospitality extended by everyone of the Auxiliary Members will make this meeting one long to be remembered.

Mrs. Lucian W. Alexander, Chairman,
Press and Publicity.

### CADDO PARISH

The Auxiliary to the Shreveport Medical Society held its regular meeting April 14 at the Shrine Hospital on Samford Avenue. A tour of the Hospital preceded a most enlightening and enjoyable talk by Dr. A. A. Durham on the history and development of the many Shrine Hospitals over the United States and Canada.

Mrs. W. R. Mathews,
Publicity Chairman.

### JEFFERSON DAVIS PARISH

The May meeting of the Woman's Auxiliary to the Jefferson Davis Parish Medical Society was held in Welsh at the home of Mrs. R. R. Arceneaux.

After the business meeting a social hour was enjoyed during which time Claude Martin, Jr., played two violin numbers accompanied at the piano by his mother.

There will be no meetings of the Auxiliary during the summer months.

The October meeting will be held in Jennings at the home of Mrs. F. W. Harrell.

Mrs. Claude A. Martin,
Publicity Chairman.

### ORLEANS PARISH

The Woman's Auxiliary to the Orleans Parish Medical Society held the last meeting of the season on May 12 at the Orleans Club. It was an interesting affair well attended by members and their guests.

Dr. Alton Ochsner, Professor of Surgery, Tulane, gave an enlightening discussion of the signs and symptoms of cancer, a subject which is being given special consideration by the Medical Society, during Longer Life Week.

The moving pictures taken of the Auxiliary activities for the year, which were shown at the state meeting in Monroe, were also enjoyed at this time. It was great fun to see your friends on the screen, particularly those taken in color of the doctors party.

During the business meeting an election of officers for the coming year was held.

After the annual reports were read and approved, we again realized that a busy and successful year had come to a close, under the delightfully capable leadership of our president, Mrs. W. P. Gardiner.

Mrs. Edgar Burns,
Publicity Chairman.

## BOOK REVIEWS

*Management of Obstetric Difficulties*: By Paul Titus, M. D. St. Louis, C. V. Mosby, 1937, pp. 879. Price $8.50.

This is a most excellent work, setting forth the author's views on the management of obstetrical difficulties. His methods are in accord with the best of present day obstetrical practices.

The reviewer cannot, of course, cover all points of interest in the book, but desires to call attention to certain ones. He agrees with the view that curettage is unnecessary and dangerous in the treatment of incomplete abortion. He also agrees with the author's conception of the test of labor in contracted pelvis, which is a more reasonable one than that usually set forth in the text books. The induction of premature labor in contracted pelvis is very properly condemned.

The author prefers the low to the classical cesarean section, which is in line with the opinions of most obstetricians. A few still hold the contrary view, but their numbers are gradually decreasing.

It is interesting to note that the author has receded somewhat from his opposition to the addition of insulin when using glucose for the treatment of hyperemis gravidarum. He now feels that it is of value in certain cases, as has been held by Thalhimer for some years.

It would be of advantage, in the reviewer's opinion, to devote more attention to the use of the roentgen ray in the study of contracted pelvis. Methods that have been developed in the past few years are of great value in the study of this complication, particularly in cases of the borderline type. Roentgen ray studies can often be of great service in determining the method of treatment.

Some examples of lack of clarity and ambiguous statements are to be noted. Thus, in the chapter on abortion, there is no separation between the topics of inevitable and threatened abortion. This should be done by the use of a proper subtitle. Also on page 293 is found the following sentence, which is susceptible of improvement: "(1) that the chorion laeve might fail to atrophy when differentiated from the chorion frondosum, and continue to grow over the decidua capsularis extending over or around the internal os, finally cleaving to the reflexa or decidua capsularis with the decidua vera". Again on page 473 appears this statement "I am unable to agree with the general teaching that the location of fetal heart sounds gives anything more than the most meager information regarding presentation or variety of position." The meaning of this sentence is at variance with the view the author wishes to express, which is set forth on the next page, as follows: "The physician who depends upon the location of fetal heart sounds as being anything more than a suggestive diagnostic point will be led astray frequently in his diagnoses."

There may be other points upon which individual opinion may differ, but on the whole it can be said that this is a most useful work, and a very well balanced one. The general typography of the book is most satisfactory, and the author is to be commended for the excellence of the illustrations.

E. L. King, M. D.

*Neuro-Anatomy*: By Albert Kuntz, Ph. D., M. D. 2d ed. Philadelphia, Lea & Febiger, 1936. pp. 519. Price $6.00

The second edition of this excellent textbook of neuro-anatomy has been considerably revised and several new chapters have been added. The plan of the book is first to discuss the nervous system as a whole, the topography and the simpler reflex and integrating mechanisms, and subsequently to give in minute detail the structure and intricate interrelationships of the component parts. The opening chapter, which deals with the evolution and comparative anatomy of the nervous system, introduces this complex subject in a way which enables the student to orient himself. The author's descriptions are detailed yet concise, correlating structure and function wherever possible, thus facilitating comprehension and retention of material. An interesting feature of the text and one helpful to the service is the summary at the end of each chapter of the salient facts which have been brought out. This book contains numerous illustrations culled from many sources, which elucidate and simplify the anatomical descriptions. A bibliography is appended to each chapter which will be useful to the reader who wishes to study the subject in more detail. The discussion of the conduction pathways is especially noteworthy, including all possible interconnections and functional relationships. The cerebral cortex is discussed from a phylogenetic, cyto-architectural and functional standpoint. The chapter on the autonomic nervous system is an excellent short summary of the subject. An outline of laboratory work has been included in the last portion of the text which should prove a useful addition in teaching.

This book is highly recommended not only to teachers and medical students but to practitioners who are interested in neurology and who need an accurate reference on this intricate subject.

G. A. Goldsmith, M. D.

*Bewildered Patient*: By Marian Staats Newcomer, M. D. Boston, Hale, Cushman & Flint, 1936. pp. 323. Price $1.75.

In the hurried performance of his daily routine, the doctor does not pause to appreciate or attempt to understand the many unasked questions which perplex his patients. Dr. Newcomer has attempted in this book to picture some of the problems which relate to the bewildered patient and the counseling physician.

The introductory chapters, covering immunology, the early development of bacteriology and the discovery of the vitamins, should keenly interest the layman. The elementary principles of nutrition and reproduction are presented. With respect to the former, we believe that Dr. Newcomer includes information beyond the need or comprehension of the average patient.

The economic aspect of medicine is not neglected. The author attempts to point out to the reader the scope of his physician's services. The physician is pictured as a guardian of the family health and not as a dispenser of pills.

In addition to the purpose of educating the patient, we gather that the author purposely intended that we, as physicians also, view ourselves from the other side of the fence, placing ourselves in a position to see the patient's problems. This book is a reminder that our medical vocabulary must be simplified when we explain that information necessary for the intelligent execution of any plan of treatment.

Every doctor can safely recommend this book to his patients, and even he may profit by reading a few chapters.

Ruth Shushan and Morris Shushan, M. D.

*Papers of Charles V. Chapin, M. D.*: A Review of Public Health Realities. New York. The Commonwealth Fund, 1934. pp. 244. Price $1.50.

This interesting and instructive volume presents a collection of sixteen of the numerous papers written by Dr. Chapin during the 48 years he served the City of Providence as its Superintendent of Health.

The brief biographical sketch by Dr. C. L. Scamman paints a picture of the true pioneer, in a branch of medical endeavor which was practically non-existent when, as a medical student Dr. Chapin first became interested, and in which field he served capably and brilliantly for fifty years. In this group of essays we glimpse the long and difficult struggle that made possible the slow evolution of Public Health Work from compulsory measures in isolated instances, diseases, and communities, to community education and instruction; from isolation and quarantine as methods of disease control, to a fundamental attack on causative agents of disease; from merely treating the sick, to preventive medicine; in a word, the development of the modern conception of public health.

The first group of essays deals with the problems of public health administration, and emphasizes the importance of considering each community as an individual problem of its health officers, and the necessity for affording the community the maximum health protection on its health investment.

The second group of essays, devoted to the control of communicable diseases, advocates the abandonment of measures, such routine as terminal disinfection, based on theories which have been discarded. Dr. Chapin stated that people, not things, spread disease, and offered as a substitution for fumigation, the more rational measures of careful aseptic nursing, concurrent selective disinfection, isolation (wherever practical) in hospitals or homes, the search for carriers, the reporting and recording of cases, and the education of the public in personal cleanliness.

The third group, dealing with epidemiology and vital statistics, recommends the application of the quantitative measures of the scientist and statistician in epidemiological work if we are to evaluate correctly the accumulated data, and points out the benefits, both in efficiency and economy, to be derived from this method of administration in public health work.

This book presents a record of past progress, and offers many suggestions and permanent principles for the practice of preventive medicine in the future, as observed in a critical and analytical manner, by a truly great and competent worker in this field during the period of its birth and development.

G. von Langermann, M. D.

*The Fundamentals of Electrocardiographic Interpretation*: By J. Bailey Carter, M. D. Springfield, Ill., Chas. C. Thomas Co., 1937. pp. 326. Price $3.50.

The author states that this is not a report of research, no new facts are to be discussed. It is a book intended for the beginner. He has drawn from the work of many. The book contains thirty-three chapters, some of which are very short.

The value of the electrocardiogram in clinical practice, physiological basis of electrocardiography, the process of electrocardiography, artefacts and their origins, origin and action of heart currents and technic are discussed in the first part of the book.

The description of the waves of the normal electrocardiogram and individual wave changes follows.

The arrhythmias, disturbance of conduction, coronary occlusion and other conditions that change the electrocardiogram, such as digitalis and various clinical conditions are discussed in some of the following chapters. He uses the old nomenclature in the description of bundle branch block and ventricular premature beats.

There are twenty-five case histories with accompanying electrocardiograms. There is an appendix on the significance of electrical deflections, standardization electrode application; a glossary of eight pages that may be of some assistance to a beginner, and a bibliography of seventy pages.

Numerous illustrations are given of electrocardiograms, most of them good. However, there would possibly be a difference of opinion in the interpretation of an occasional one.

The beginner can find much in this book to help him.

J. M. Bamber, M. D.

*Synopsis of Ano-Rectal Diseases*: By Louis J. Hirschman. St. Louis, C. V. Mosby Co., 1937. pp. 288. Price $3.50

This small compendium of approximately 275 pages is the result of the author's attempt to "bring before the medical student, as well as the general practitioner, a small condensed work on the diagnosis and treatment of the commoner diseases of the anus and rectum".

Characteristically in efforts of this kind, the resultant volume has a definitely limited appeal. Its careful perusal by the specialist in that particular field is obviously superfluous; its paucity of details makes its usefulness to the surgeon and internist extremely limited; and to the general practitioner and medical student it can serve little more than as a guide or outline to the conditions. To this weakness, this book is no exception.

The early chapters dealing with the anatomy of the anal canal and rectum, examinations and preparation of the patient, and symptoms which should call attention to the rectum are instructive condensations of these subjects. Especial approbation is due the commendable and instructive section devoted to the preparation and examination of the patient.

The advocacy of icthyol in the treatment of anal fissure and acute and chronic proctitis is somewhat surprising. There is no mention made of the management of imperforation of the anal canal and rectum.

The profuse illustrations consisting of fairly good drawings and excellent photographs are pertinent and help clarify the text.

Michael DeBakey, M. D.

*Physical Therapeutic Methods in Otolaryngology*: By Abraham R. Hollender, M. D., F. A. C. S. St. Louis, C. V. Mosby Co., 1937. pp. 442, Price $5.00.

This volume represents a comprehensive review and clinical evaluation of all physical therapeutic methods indicated in the practice of otolaryngology.

Sufficient space is devoted to fundamentals to insure correct employment of the various therapeutic aids. Clinical problems encountered in daily work are discussed in detail, and the method of approach outlined.

Much knowledge and information is gained by a careful review of this book. It readily assures the best results in the use of physical agents as applied to otolaryngology.

F. E. LeJeune, M. D.

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*Principles and Foibles of Cancer Research in Regard to Etiology and Nature*: By William Rienhoff, Sr., M. D., F. A. C. S. Baltimore, Waverley Press, 1936. pp. 200.

Paraphrasing my impression of Dr. William Rienhoff's discussion of the etiology and nature of cancer:

In this rather deep but thorough review of cancer, which has to do primarily with its etiology, I was able to gain much insight into the dark but infant field of cancer.

It is my impression that Dr. Rienhoff had for his purpose a thorough review of the numerous theories for the cause of cancer when he wrote the Principles and Foibles of Cancer Research.

There are almost as many theories of the cause of cancer as there were about the cause of diseases and maladies in the olden days of witchcraft but very few evident facts have yet been set forth and corroborated on the subject. When we are able to conceive a paramount problem, such as time and space since the beginning of the world, then we will have a comparison of the problem of cancer and the knowledge consumed in solving such a problem.

"Just as the color of one's eyes and the shape of one's nose is controlled by the genes and chromosomes of heredity so also are the promotion and function of all the ductless glands of one's body which not only have to do with controlling one's personality but the tendency of one's body to contract certain diseases more readily than others and likewise to develop cancer."

God Almighty, our maker and originator of the world and all its beings, did not intend for the human mind to be able to conceive of all the problems in its making, neither did He intend for us to be able to conceive of all the causes for diseases and existence. If such were humanly possible we would then live forever in a land of bliss where there would be no diseases, suffering or senility in old age.

All these remarks are not set forth by me with the purpose in mind of discouraging the study of cancer, but with the purpose of assimilating a thought which will attempt to include the theories of all and not to discredit the most infinite theories of any.

The finder of the cause of cancer will not be as the finder of a nugget of gold but as numerous particles of sand which when taken together constitute one big mass of earth.

G. Barnes, M. D.

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*Essentials of Electrocardiography*: By Richard Ashman, Ph. D. and Edgar Hull, M. D. New York, The Macmillan Co., 1937. pp. 212. Price $3.50.

The first chapter of this book is devoted to the measurement of the electrocardiogram and a discussion of artefacts, their source and recognition, which is very important in the proper interpretation of electrocardiograms.

Chapter two deals with the physiological and physical bases of the electrocardiogram, which is described both in figure and in text in such a way that enables one to get a good idea of this phase of the subject.

The normal human electrocardiogram and changes produced by disease, is discussed in chapters three and four. The different waves of the electrocardiogram are described and illustrated. A clinical diagnosis is given under each illustration and the electrocardiogram described in detail.

One hundred controls were studied as to the average P. R. and Q. R. S. intervals at different ages and different heart rates. The authors believe the P wave deserves more attention than it usually receives, and it is believed that this will prove to be true.

The authors follow Lewis' definition of the waves composing the Q. R. S. In other words the initial deflection of the Q. R. S. which is directed downward is a Q. wave. An initial deflection which is upward or an upward deflection which is preceded by a Q. wave is an R. wave. A downward deflection which follows an R. wave is an S. wave. This is the easiest and best procedure at this time, notwithstanding the difficulty in naming some upward deflections that follow the S. wave. However, when the amplitude is low, we speak of M. and W. or simply splintered Q. R. S. complexes.

A good description is given of bundle branch block, both pathological and functional. They call attention to electrocardiograms with an S wave in all leads, with a relative low A one, the S wave being equal to or greater than the R waves in leads two and three and frequently in lead one that occurs in people with apparently no heart disease.

The reviewer has been impressed with the frequency of symptoms of neurocirculatory asthenia in people showing this type of curve; however, no definite evidence of heart disease can be made out.

In discussing the T wave, they call attention to the point emphasized by Wilson and his co-workers. That is, that abnormal T wave inversion in the presence of Q. R. S. complexes, which are not abnormally high or wide, is due to the factors that have affected the myocardium, while T wave changes, associated with increased area of the Q. R. S., are not directly due to myocardial disease. This is important to remember and is frequently overlooked.

In chapters five and six they discuss the electrocardiogram in diseases of the heart and rightly call attention to the fact that it is only a part of the examination and has to be taken with the entire clinical picture. This holds good for diagnosis and prognosis. One may say that the electrocardiogram is of less value in prognosis than it is in diagnosis and the prognosis depends more on the clinical picture. On page 103 are two illustrations of curves showing the changes that occur in rheumatic fever. In such cases such changes may be the only clue to the diagnosis.

The electrocardiogram in syphilitic heart disease, arteriosclerotic heart disease, coronary thrombosis, hypertensive heart disease, congenital development defects is well handled in these same chapters.

Chapters seven and eight are devoted to the cardiac mechanism. At the beginning they stress the importance of the identification of the P wave in the interpretation of disturbances. Various kinds of premature beats, paroxysmal tachycardia, heart block, auricular flutter, interference dissociation, aberration due to refractory period variation are well described in these two chapters.

There is an appendix with a list of electrocardiographic signs with normal limits of duration, amplitude or other characteristics. A chart for finding electric axes, tables showing upper limits of the P. R. intervals and other interesting tables are given.

One can without hesitation recommend this book to anyone interested in electrocardiography.

J. M. Bamber, M. D.

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*Bright's Disease and Arterial Hypertension*: By Willard J. Stone, B. Sc., M. D., F. A. C. P. Philadelphia, W. B. Saunders Co., 1936. pp. 352. Price $5.00.

Presented in an attractive form, well written and based upon very large experience, this book on diseases of the kidney deserves more extended comment than can be given in the limited space of a book review. The author first presents the historical sequences of the development of the present day knowledge of Bright's disease. He then gives some of the various classifications of kidney disease and discusses these classifications; then, unfortunately, he adds a new classification to the already large number that tend to cloud the undertanding and obscure the terminology of Bright's disease. The following three chapters have to do with physiology and pathologic physiology; they are excellent. Further space is allotted to tests for kidney function, to acidosis and alkalosis and to uremia. It would add to the value of the volume were uremia discussed a bit more fully, critically and completely than it is. The last few chapters have to do with the several types of Bright's disease, according to the author's classification, and the final chapter contains autopsy abstracts, very brief, succinct, but containing the important clinical and pathologic features. The reviewer feels that Dr. Stone has made a real contribution to the extremely important condition, Bright's disease, but he is not quite so sure that the author has done very much to further the systematic study of arterial hypertension, except in so far as its physiologic disturbances are associated with the pathologic-physiologic disturbances of kidney disease.

J. H. Musser, M. D.

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*Abnormal Personality and Time*: By Nathan Israeli, Ph. D. New York, The Science Press Printing Co., 1936. pp. 122. Price $2.50.

This small volume of about 125 pages is largely a result of studies of the time element in relation to human behavior carried on during the last eight years by Dr. Nathan Israeli. There is shown by many case histories how people suffering from various psychotic disorders, as dementia precox, paranoia, and senile psychoses, are motivated by their notion of time.

The thesis is well written and the description of the mental disturbances are clear and not burdened with too much that is not ncessary. This book will prove very interesting and stimulating, and it indicates new approaches to the study of normal as well as abnormal personality reactions.

C. S. Holbrook, M. D.

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*Atlas of Congenital Heart Disease*: By Maude E. Abbott, M. D., F. R. C. P. 1st edition. 62 pages with 26 plates embodying over 200 illustrations. The American Heart Association, New York, 1936. Cloth, $5.50.

The arrangement of this unique volume is designed to present in atlas form the material collected by Dr. Abbott for her monumental museum of specimens showing the relationship between the comparative or developmental anatomy of the heart and congenital cardiac anomalies. In a distinctive manner the excellent illustrations are grouped according to type of anomaly. Facing each large, full-page plate is a general discussion of the type and a brief though quite complete note describing each heart illustrated. The sequence of the specimens is according to a carefully planned outline. In Part I, the development of the reptilian and mammalian heart is traced according to the most accepted theories of embryology. In addition, the comparative anatomy of the fish, amphibian and reptilian hearts is presented in detail to show the amazing similarity between many bizarre cardiac anomalies and the normal hearts of lower vertebrates. The teleological theory of Spitzer, which, with startling simplicity, ascribes the cause of many cardiac defects to incomplete torsion of the divided bulbus cordis, is accepted by Dr. Abbott as being by far the best explanation we have at present, especially for transposed vessels or valvular stenosis.

In Part II, the writer outlines her "clinical classification of congenital heart disease," which has been quoted frequently since it first appeared in Osler's "System of Modern Medicine" in 1908. Then, 412 cases of congenital heart disease collected from the literature were studied statistically. In the present volume this collection has been enlarged to over 1000 cases, some of which have never been published before. The most illustrative examples of each form of anomaly are described in abstract with drawings, or photographs, so that a reader may rapidly classify almost any anomalous heart encountered. In the general discussion of each form, she has compared the various important reported cases, suggested the teleological explanation of their origins, and listed valuable additional references. The main headings of her classification are: Group I: Acyanotic cases, in which there is no abnormal communication between arterial and venous channels. Group II: Cyanose tardive, including cases of arterial-venous shunt with terminal reversal of flow. Group III: Cyanotic cases, in which there is a permanent venous-arterial shunt or retardation of flow. There is a large chart (reproduced from an earlier monograph) with statistical analysis of the 1000 cases according to the individual defects, clinical signs and symptoms, age, sex and so on. In such a chart, one would desire statistics concerning the common associations of defects, such as in the tetralogy of Fallot.

The atlas is to be followed by a much larger volume on congenital heart disease which the author has under preparation. Certainly there is no one as capable as Dr. Abbott of such a task. Fired by a spark of enthusiasm from Osler, whom she succeeded as curator of the McGill Museum, she has made the subject one of "such general and widespread interest that we no longer regard it with either disdain or awe as a mystery for the autopsy table alone to discover or to solve." In the foreword by P. D. White and in the introduction by the author, there is an interesting resume of the development of Dr. Abbott's lifelong investigation of this specialized field of medicine. The frontispiece shows portraits of five scientists who have made notable advances in our knowledge of congenital heart disease. These are Senac, Morgagni, Peacock, Rokitansky, and Keith. In any other volume on this subject, certainly a large-sized portrait of the modest Dr. Abbott should be included.

The clinical significance of congenital cardiac anomalies depends upon the pathological physiology of the altered circulation as induced by the defect. Some defects produce of themselves no signs or symptoms, but are of serious import because of their association with such dangerous sequelae as endocarditis lenta or dissecting aneurysms. Because of the value of detailed acquaintance with the subject to internists, pediatricians, anatomists and pathologists, Dr. Abbot's "Atlas of Congenital Cardiac Disease" merits a wide circulation.

JOSEPH THOMAS ROBERTS, M. D.

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*Social Case Recording*: By Gordon Hamilton. New York. Published for the New York School of Social Work by Columbia University Press, 1936. pp. 190. Price $2.50.

"Social Case Recording" fills a long felt need in the social work field. The emphasis is on selection, evaluation and diagnostic thinking. Miss Hamilton says, "The case worker has to resist alike the temptation to arbitrary over-simplification and useless qualification. All diagnostic efforts, or treatment evaluation are extraordinarily complicated, tentative and flexible, and is understood as such by the well trained reader or writer of records. The difficulty is not in recording clearly but in learning to think clearly, and no record can be said to be professional until our fragmentary and imperfect diagnostic thinking is included." Again "To repeat, there is no such thing as a model or pattern record, and in the professional record skill in practice and skill in recording are so closely interdependent as to be almost indistinguishable. The best records contain not only objective facts, events, and behavior but are purposed to bring out clearly diagnostic thinking and treatment as well." Extensive examples of various types of recording are quoted from case records, with discussion of their strengths and weaknesses as well as the purposes for which they might be used most effectively. No specific plan or form of recording is recommended, the form depending upon appropriateness for the individual case. The material is presented in an orderly, interesting fashion, the introductory discussion followed by chapters on format and structure, the chronological entry and the summary, interpretation or diagnosis and plan of treatment, letters and reports, the recording of process, style, special problems in recording, special problems in relief recording, with the final chapter summing up the material briefly. While the book is mainly of interest to social workers, the chapter on Special Problems in Recording is of particular interest in the medical field. It includes a discussion of social recording in the unit record and the difficulties encountered in the adjustment of the social worker's emphasis on the family group to the medical focus on the individual patient. Miss Hamilton has given us much food for thought, so much in fact that one reading is not enough. This does not mean that the book is difficult to read. On the contrary, it is done in a readable, interesting style. But this small volume contains a wealth of material that should be studied, not merely read, to get the most out of what it has to offer.

Julia Mae Magruder.

*Medical Urology*: By Irvin S. Koll, B. S., M. D., F. A. C. S. St. Louis, C. V. Mosby Company, 1937. pp. 431. Price, $5.00.

This volume of some four hundred pages, is intended to furnish the general practitioner and medical student with a ready reference book for the recognition and management of urological diseases. It is concise and lays emphasis on the details of diagnostic treatment, a feature often lacking in the larger standard textbooks.

The clinical anatomy of the various sections of the genito-urinary tract is included, and this leads to a better understanding of much of what is said about diagnosis and treatment. The most important points in differential diagnosis are presented, for the most part, in outline form, making it a simple matter to review them whenever desired. The last section consists of such an outline, and is perhaps the best feature of the book.

Unfortunately, certain of the most recent advances in urological practice are not included, notably, the use of mandelic acid in the treatment of urinary infections. Further, it should be remembered that a work of this kind represents only the opinions and prejudices of its author and cannot, or should not, be taken as final authority on any given point. However, it may well serve, as its author intended, as a ready source of information to aid in the handling of commonplace urological diseases.

W. E. Kittredge, M. D.

## PUBLICATIONS RECEIVED

Collegiate Press, Inc., Ames, Iowa: Anatomy of the Fetal Pig by John G. Sinclair, M. S., Ph. D.

Harper & Brothers, New York: The Mind of Man by Walter Bromberg, M. D.

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